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THE PROPHYLACTIC EFFECT OF VITAMINS A AND D UPON THE PREVENTION OF THE COMMON COLD AND INFLUENZA[1]

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IT IS generally recognized that the common cold is one of the most prevalent forms of disease in temperate climates and is no doubt responsible for a great loss of working time and efficiency. Statistics show an average of two colds a year per individual. D. and R. Thomson (1) have recently compiled data from about 2000 research papers on the common cold. We find here a wealth of information on every phase of this subject. The Thomsons believe that the term "common cold" is a generic one which covers a whole host of specific catarrhal infections of the mucous membrane of the respiratory tract. In other words, it is not a single disease caused by one organism but a "group of diseases" caused by several different organisms. They arrived at this conclusion after 15 years' careful observation on a limited number of persons, both in health and during the attack of colds, and from their exhaustive study of the literature on the subject. They divided colds into three groups, the bacterial, allergic and virus colds.

There are no doubt several conditions or sets of conditions in our daily life that will render us susceptible to colds. Most important of these are: overnutrition and undernutrition, fatigue, loss of sleep, chills, cold weather, sudden changes in temperature, gastro-intestinal infections, nasal obstructions and defects, inherent susceptibility, etc. Any or all of these factors may increase the number and virulence of the active agents, such as the pneumococci, *B. influenzae*, *M. catarrhalis*, Friedlander's bacillus, Pfeiffer's bacillus, streptococci, etc. (D. and R. Thomson) in the production of a cold. No doubt a filterable virus may also

[1] Received for publication January 24, 1934.

play an important part here (Dochez). Thus a general lowered resistance to infection caused by any of the above predisposing factors is no doubt responsible, in many instances, for the onset of colds.

There are several ways by which a given individual may prevent "taking a cold." The Thomsons list two chief ones: (a) those measures which reduce the chance of infection, and (b) those which increase the resistance to catarrhal infections. These may then be divided into 14 subgroups, one of which the writer believes to be very important—*i.e.*, the prevention of colds by dietetic measures, a subject which seems to have been little studied in man.

VITAMIN A AS AN ANTI-INFECTIVE AGENT

The literature is replete with reference to the effects of vitamin A in diseases of the respiratory tract. This subject has recently been discussed extensively by Browning (2) and Sherman and Smith (3) in their monographs on the vitamins. In addition to an infectious eye disease (xerophthalmia) that invariably follows vitamin A deficiency, it is now well established that pathological changes may and do occur in other parts of the body when this vitamin is lacking in the diet. For instance, Wolbach and Howe (4, 5) observed the following pathological changes in experimental animals fed upon vitamin-A-free diets: the presence of abscess-like cavities at the base of the tongue and in the pharynx and submaxillary glands. These cavities were found to be cysts lined with a stratified, keratinized epithelium. The principal change found was "a transformation of various epithelia into stratified squamous keratinizing epithelium." This change was practically constant in the upper respiratory tract, including the whole of the nasal passages, the larynx, trachea and bronchi. In other tissues there was a transformation of cuboidal into squamous epithelium. Infection then followed as a result of a weakening of the tissue. Goldblatt and Benischek (6), and Tyson and Smith (7) have confirmed this epithelial metaplasia, with increasing evidence of infection, in animals suffering from vitamin A deficiency.

Turner and coworkers (8, 9) observed pathogenic organisms, the number of which increased with the severity of symptoms, which gained a foothold in these weakened tissues due to lack of this vitamin in the diet. Sherman and Burtis (10) demonstrated that the level of vitamin A intake during early life may have a marked influence on subsequent susceptibility to infection. Mellenby (11) made an attempt to trace catarrhal infections of the respiratory tract of children to a mild deficiency of vitamins. Macy and coworkers (12) noted otitis media, mas-

toid disease, sublingual abscesses and the usual lung diseases in vitamin A deficiency. In the 1927 *Report of the Committee on Nutritional Problems* presented to the American Public Health Association, it was stated that there was an actual diminution in the vitamin A content of lung tissue in animals suffering from a lack of vitamin A. As the result of numerous studies in this connection, many students of nutrition now believe that vitamin A is more directly related to resistance to infection than is any other food factor.

Experimental evidence for the anti-infective nature of vitamin A in human beings is, however, not very convincing at present, possibly because of the inherent difficulties that are always encountered in such work. However, a few interesting studies have recently been published. Smiley (13) has collected the records of respiratory infections among about 4000 male university students for 12 years. These were compared with the daily temperature, rainfall, and hours of sunshine. The lower the temperature and the less the sunshine the greater was the incidence of colds and other diseases of the respiratory tract. The situation was reversed when higher temperatures and a larger amount of sunshine were present. Smiley believes that colds are due to an interference with the vitamin metabolism of the body which leads to a diminution of resistance to bacterial infection. Cheney (14) stated that a cold is due to defects in diet and metabolism. After 11 years' study of the subject, he is convinced that an acute cold is not primarily an infection but only a symptom syndrome of a systemic disturbance. Chalmers (15) also believes that some metabolic disturbance plays an important part in the etiology of colds, and Winholt and Jordan (16) hold the same view in relation to colds in babies.

The Thomsons' monograph (1) stated the following in relation to the effect of diet and vitamin deficiency on the predisposition to colds: "There is considerable evidence from the literature that diet, and more especially a deficiency of vitamin A, may have a deleterious effect on the mucous membrane of the respiratory tract as well as upon the whole constitution. It must play, therefore, some considerable part in lowering the resistance to colds. Long before vitamins were heard of medical men had observed the beneficial effect of cod liver oil in increasing the resistance of children to catarrhal attacks. Dietetic deficiency, however, is not sufficient to explain the high susceptibility of many individuals to catarrhal attacks since, in many of these persons, the diet is adequate in every respect."

According to Holmes, Pigott and Sawyer (17), "lost time" amounts

to 250 million working days, annually, in the United States. This enormous waste of time can be materially reduced by proper diet. Holmes' experiments, which were carefully conducted over a period of three years, showed that very fat or very thin persons are more likely to be absent from their work, due to illness, than are persons of normal weight. The addition of cod liver oil to the usual home diet was found to have a decided influence in the reducing of time lost from work. Those subjects who received the cod liver oil in addition to their daily diet were absent 1.1 per cent of their working hours, while control subjects working in the same rooms with the cod liver oil subjects were absent 3.1 per cent of the time.

VITAMIN D AS AN ANTI-INFECTIVE AGENT

The effects of ultraviolet irradiation upon the incidence of colds and as an anti-infective agent has recently been discussed by Laurens (18) and Clark (19). Negative results have usually been obtained in this connection. On the other hand, Maughan and Smiley (20) observed, after correcting for the annual fluctuation of respiratory infections between the winter of study and the previous winter, that the reduction in the frequency of colds in three groups of Cornell students was 28 per cent after irradiation with a mercury vapor lamp. In a second study (21), they noticed a reduction in the frequency of colds from 28 to 40 per cent.

EXPERIMENTAL

If the above findings of others are correct it follows that an increased resistance of the respiratory tract to infection should take place in individuals who begin vitamin A and D prophylaxis in the summer and fall months. With this idea in view the writer has studied a group of 36 first year medical students as experimental subjects, with reference to the effects of vitamin A and D therapy upon the prevention of colds and influenza. A study of a small group of individuals under carefully controlled conditions would seem to be of much more value than a similar study of a larger group in which many more variables would no doubt be encountered. Each student was his own control in that he recorded the incidence of colds for the previous year, while an accurate observation was made from June, 1932, until June, 1933, of the incidence of colds and influenza in each student after taking 9 cod liver oil concentrate tablets daily during this time.[2] All students kept up their usual activities and

[2] The author wishes to thank the Health Products Corporation, Newark, N. J., for a generous supply of White's Cod Liver Oil Concentrate tablets for this study.

TABLE 1

The effect of vitamin A and D therapy upon the prevention of colds

SUBJECT	NUMBER OF COLDS PER YEAR BEFORE TAKING COD LIVER OIL CONCENTRATE TABLETS	NUMBER OF COLDS PER YEAR SINCE TAKING COD LIVER OIL CONCENTRATE TABLETS	SEVERE	MILD
T. A.	3–4 severe and mild	7	3	4
C. A.	2–3 severe and mild	1	—	1
R. B.	Many continuous—mild	3	1	2
B. B.	15 mild	5	1	4
W. B.	4–5 severe and mild	5	1	4
J. B.	3 severe and mild	2	1	1
K. B.	2–3 severe and mild	1	0	1
A. C.	4 severe and mild	2	1	1
F. D.	7–10 mild	0	0	0
G. D.	3 mild	3	0	3
J. D.	5 severe and mild	1	0	1
J. D.	1 mild	0	0	0
N. F.	4 mild	6	0	6
C. F.	5 severe and mild	3	1	2
R. G.	3 severe and mild	1	0	1
M. H.	6–8 severe and mild	3	0	3
H. J.	6–10 severe and mild	6	4	2
D. K.	6 mild	0	0	0
M. L.	5 mild	2	0	2
P. L.	4 severe and mild	1	1	0
M. L.	2 severe	4	2	2
R. M.	3 severe 4–5 mild	0	0	0
W. M.	3–4 severe and mild	3	3	0
J. M.	2–3 mild	1	0	1
J. M.	3 mild	7	3	4
L. M.	2–3 mild	2	1	1
G. M.	2–3 mild	4	4	0
R. N.	18 severe and mild	1	0	1
J. P.	7–10 severe	12	0	12
J. R.	2 mild	3	1	2
C. S.	5 severe	5	2	3
W. S.	20 severe and mild	0	0	0
A. T.	6 mild	1	0	1
B. V.	3 severe and mild	0	0	0
B. W.	3 severe and mild	2	2	0
H. B.	3 severe	3	0	3
	175–200	100	32	68

Summary

		Per cent
Number of colds *before* cod liver oil therapy (estimated)	175–200	
Number of colds *after* cod liver oil therapy (actual)	100	
Severe	32	32
Mild	68	68
	100	100

		Per cent
Total number of students on experiment, 36		
Definite prophylactic effect in	21.0	58.3
Slight prophylactic effect in	4.0	11.1
No prophylactic effect in	11.0	30.6
	36.0	100.0

no change in dietary habits or mode of living was made. There was a great deal of rainfall in New Orleans during the above period; this afforded additional opportunity to study the prophylactic effect of the tablets on the incidence of colds and influenza, especially since an epidemic of the latter disease occurred during the period of study.

RESULTS

The number of colds and their severity, before and after taking the tablets, is given in table 1. It will be noticed that there was a reduction of about 50 per cent in the number of colds as compared to the previous year. In 58 per cent of the students there was a definite prophylactic effect from the tablets, a slight effect in 11 per cent, and no effect in 31 per cent. It is also interesting that in the 100 colds that did develop, 68 per cent were mild and 32 per cent, severe. Some students noted a severe cold on arising in the morning which, however, disappeared completely in a very short time. The writer believes this of especial significance.

During the period of this study, an epidemic of influenza occurred among the students of several Louisiana institutions. Of the 36 students in the present study who took the cod liver oil concentrate tablets, 56 per cent suffered an attack of influenza while 46 per cent were free of the disease. In another group of 100 students who did not take the tablets, the percentages were exactly the same.

SUMMARY

The prophylactic effect of the ingestion of 9 White's "Cod Liver Oil Concentrate Tablets," daily, for 1 year, upon the onset and development of colds and influenza in a group of 36 medical students was studied. There was a reduction of about 50 per cent in the incidence of colds, and 68 per cent of those that did occur were of the mild type. If one allows for the many variables encountered in work with human subjects, it is evident that the vitamin ingestion here reported had a definite value in preventing the onset and lessening the severity of colds. The incidence of influenza was, however, exactly the same in the group taking the tablets as it was in another group of 100 students not taking them.

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THE IODINE CONTENT OF HOSPITAL FOODS[1]

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FOR some time we have been accustomed to order low iodine diets for all goiter patients, prior to studying the blood and urinary iodine. Sea food was omitted from such diets and meats substituted, but otherwise the diet was the same as that of the other hospital patients. The marked changes which sometimes occurred in urinary iodine excretion from day to day (1) made us wonder, even with the precaution of omitting sea food, whether we did not still have large discrepancies in iodine intake. For that reason we were interested to know how much iodine these patients were getting in their food and how much was contributed by the different foods used.

Iodine analyses were made of various foods used in the University Hospital between July 31 and August 3, 1933. Eggs, milk, cream, butter and cottage cheese came from the University Dairy. No added iodine was being given to either the hens or cows at that time. Fresh vegetables, in season, were from the local market. Bread was obtained from a local bakery; the flour used in its preparation was from Kansas wheat. Ice cream was of local manufacture. The milk and cream were obtained from dairies in central Ohio. The cakes and puddings were prepared in the hospital kitchen.

On the same days, the amounts of these foods eaten by one of our goiter patients were recorded. This patient was a white married woman, aged forty-three years, and in the fourth month of her seventh pregnancy. She had a non-toxic nodular goiter which had been present since adolescence. She weighed 150 pounds and was 68 inches tall. Basal metabolic rate was plus 8, with a pulse of 92, blood pressure of 118/70, and temperature 98.2.

From her food consumption, we calculated her iodine intake for the four days and found it to be: 161, 196, 168, and 207 gamma per day, respectively. The errors involved in such a calculation are, of course, large, but at least a relatively high iodine intake is indicated as compared with the goitrous regions in China (2), Switzerland (3), or Pecs, Hungary (4).

The iodine content of the foods consumed is presented in table 1. In

[1] This work has been conducted under a grant from The Douglas Smith Foundation for Medical Research of the University of Chicago. Received for publication, March 5, 1934.

TABLE 1

Iodine content of hospital foods July 31 to August 3, 1933

FOOD	IODINE, GAMMA PER CENT OF WET WEIGHT	
Uncooked fruits and vegetables		
Banana	20.0	
Cantaloupe	2.3	
Celery	12.3	
Chinese cabbage	2.1	
Grapefruit	1.3	
Grape juice	0.9	
Lemon juice	5.2	
Head lettuce	3.1	4.2
Head lettuce	5.2	
Plums	4.7	
Tomato	2.6	
Orange juice	1.4	
Orange juice	1.1	
Orange juice	1.2	1.5
Orange juice	1.6	
Orange juice	2.0	
Cooked fruits and vegetables		
Apple sauce	12.5	
Asparagus	5.1	
Beets	3.8	
Broccoli	3.7	
Cabbage	2.0	
Carrots	1.1	
Corn	5.2	
Mixed fruit (seedless grapes, pineapple, cherries)	6.7	
Peaches (canned)	16.1	
Pears, Bartlett (canned)	2.2	
Pineapple (canned)	9.7	
Potatoes (boiled)	3.4	
Potatoes (mashed)	4.1	
Prunes (dried cooked)	5.0	
Spinach	5.5	
Sweet potato (mashed)	0.8	
Tomato juice	4.7	
Turnips (creamed)	3.9	
Dairy products		
Butter	14.7	
Cottage cheese	6.1	
Cream 20 per cent	4.5	5.7
Cream 20 per cent	6.8	
Milk	3.3	

TABLE 1—*Concluded*

FOOD	IODINE, GAMMA PER CENT OF WET WEIGHT	
Dairy products—*Concluded*		
Whipped cream	7.2	
Strawberry ice cream	3.5	
Hot chocolate	6.5	6.5
Hot chocolate	6.6	
Malted milk	9.8	8.4
Malted milk	7.0	
		Per egg
Egg	24.0	10.6
Egg	22.0	11.2
Egg	25.1	10.4
Egg	29.0	11.4
		10.8
Deviled eggs	12.5	
Meats		
Bacon	16.2	
Lamb chop	14.6	
Roast beef	9.2	
Swiss steak	9.1	
Veal	6.8	
Bread, cake, formulas, etc.		
White bread	14.7	
White bread	13.1	
White bread	11.6	13.2
White bread	13.5	
Whole wheat bread	10.8	
Cinnamon bread	14.6	
Gingerbread	32.0	
Cup cake	7.9	
White cake with chocolate frosting	7.5	
Cocoanut pudding	16.3	
Corn chowder	1.8	
Fruit "Jello"	8.3	
Beef gravy	17.0	
Veal gravy	11.2	
Thousand Island dressing	7.0	
Lemonade	6.8	
Mayonnaise	27.0	
Cooked rolled oats	15.7	
"Pep"	9.0	
Stuffed pepper	1.8	
"Rice Krispies"	15.1	
Sugar	16.2	
Tomatoes and macaroni	16.2	
"Wheatena"	3.0	

tables 2, 3, 4, and 5, the daily amount of food eaten, and the corresponding calculated iodine intake are given.

TABLE 2

Iodine intake July 31, 1933

MEAL	FOOD	AMOUNT EATEN (GRAMS)	IODINE INTAKE (GAMMA)
Breakfast	Cream	114	6.5
	Sugar	12	1.9
	Banana	76	15.0
	"Pep"	44	4.0
	Toast (white)	41	5.4
	Hot chocolate	172	11.2
	Butter	8	1.2
	Egg (1)	1	10.8
Nourishment (10:00 a.m.)	Orange juice	250	3.7
Lunch	Milk ½ plus cream ½	188	8.5
	Bread (white)	42	5.6
	Butter	4	0.6
	Lettuce	40	1.7
	Pear (canned)	74	1.6
	Cottage cheese	3	0.2
	Corn	126	6.5
	White cake (chocolate frosting)	62	4.6
	Tomato (raw)	40	1.0
Nourishment (2:00 p.m.)	Lemonade	230	15.6
Supper	Milk ½ plus cream ½	202	9.1
	Whole wheat bread	40	4.2
	Butter	12	1.8
	Lettuce	18	0.7
	Celery	54	6.5
	Cantaloupe	378	8.7
	Potatoes (boiled)	120	4.1
	Roast veal	24	1.6
	Gravy	87	9.7
	Spinach	97	5.3
	Lemon juice	5	0.2
Nourishment (8:00 p.m.)	Orange juice	204	3.1
			160.6

The constancy of the iodine content of the eggs is remarkable, although there is a fairly wide variation in the percentage of iodine in the different

eggs analyzed. The local fresh fruits and vegetables studied were all very low in iodine content as would be expected in a region so far from the seaboard.

TABLE 3

Iodine intake August 1, 1933

MEAL	FOOD	AMOUNT EATEN (GRAMS)	IODINE INTAKE (GAMMA)
Breakfast	Sugar	8	1.3
	Cream	105	6.0
	Apple sauce	92	11.5
	"Wheatena"	180	5.4
	Bacon	14	2.3
	Hot chocolate	192	12.5
	Toast (white)	40	5.3
	Butter	8	1.2
Nourishment (10:00 a.m.)	Orange juice	190	2.8
Lunch	Milk ½ plus cream ½	228	10.3
	Bread (white)	48	6.3
	Beets (boiled)	58	2.2
	Lettuce	18	7.6
	Macaroni and tomato	230	27.3
	Carrots (boiled)	120	1.3
	Butter	8	1.2
	Strawberry ice cream	122	4.3
Nourishment (2:00 p.m.)	Malted milk	190	15.9
Supper	Milk ½ plus cream ½	236	10.6
	Fruit "Jello"	134	11.1
	Bread (white)	46	6.1
	Lettuce	20	0.8
	Pineapple (canned)	38	3.7
	Cantaloupe	12	0.3
	Roast beef	84	7.7
	Potatoes (boiled)	124	4.7
	Cabbage (cooked)	138	2.8
	Gravy	58	9.9
	Butter	8	1.2
Nourishment (8:00 p.m.)	Orange juice	200	3.0
			195.6

There was no apparent correlation between the food intake and urinary excretion of iodine. The urinary iodine for the same four days was 121, 111, 103, and 118 gamma per day, respectively.

TABLE 4

Iodine intake August 2, 1933

MEAL	FOOD	AMOUNT EATEN (GRAMS)	IODINE INTAKE (GAMMA)
Breakfast	Sugar	15	2.4
	Cream	212	12.1
	Grapefruit	118	1.5
	"Rice Krispies"	18	0.3
	Butter	16	2.4
	Hot chocolate	210	13.6
	Toast (white)	34	4.5
	Egg (1)	1	10.8
Nourishment (10:00 a.m.)	Orange juice	188	2.8
Lunch	Milk ½ plus cream ½	182	8.2
	Asparagus	152	7.8
	Stuffed pepper	182	3.3
	Bread (white)	42	5.5
	White cup cake	46	3.6
	Butter	14	2.1
	Prunes (cooked)	13	0.6
	Peaches (canned)	44	7.2
	Lettuce	16	0.7
Nourishment (2:00 p.m.)	Malted milk	196	16.5
Supper	Milk ½ plus cream ½	216	9.7
	Mixed fruit	102	3.9
	Bread	46	6.1
	Butter	14	2.1
	Swiss steak	138	12.6
	Potatoes (mashed)	202	8.3
	Thousand Island dressing	56	3.9
	Celery cabbage (raw)	44	0.9
	Creamed turnips	132	5.1
Nourishment (8:00 p.m.)	Tomato juice	206	9.7
			168.2

The analyses were made in duplicate by the modification of the von Fellenberg procedure used in this laboratory (5).

TABLE 5

Iodine intake August 3, 1933

MEAL	FOOD	AMOUNT EATEN (GRAMS)	IODINE INTAKE (GAMMA)
Breakfast	Plums (fresh)	57	3.0
	Oatmeal	146	23.0
	Toast (white)	20	2.6
	Cinnamon toast	38	5.5
	Cream	120	6.8
	Sugar	10	1.6
	Hot chocolate	196	12.7
	Egg	50	10.8
	Butter	12	1.8
Nourishment (10:00 a.m.)	Orange juice	184	2.8
Lunch	Crackers (not analyzed)	8	—
	Bread (white)	48	6.3
	Gingerbread	84	26.9
	Whipped cream	16	1.1
	Milk ½ plus cream ½	228	10.3
	Butter	14	2.1
	Deviled egg	62	7.7
	Lettuce	16	0.7
	Corn chowder	232	4.2
Nourishment (2:00 p.m.)	Malted milk	186	15.6
Supper	Milk ½ plus cream ½	206	9.3
	Mayonnaise	25	6.7
	Tomato	72	1.9
	Lettuce	26	1.1
	Cocoanut pudding	100	16.3
	Butter	18	2.6
	Bread (white)	44	5.8
	Mashed sweet potato	190	1.5
	Lamb chop	80	11.7
	Broccoli	80	3.0
Nourishment (8:00 p.m.)	Grape juice	198	1.8
			207.2

When determinations were made on several samples of similar material, averages were taken for calculation.

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THE INFLUENCE OF BODY WEIGHT AND THE ADMINISTRATION OF COD LIVER OIL ON INDUSTRIAL ABSENTEEISM[1]

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NUMEROUS studies of the causes of industrial absenteeism show that "lost time" of industrial workers constitutes a serious economic loss. Mills (1), in a report on the extent of illness and of physical and mental defects, states that wage earners of the United States have 250,000,000 days of "lost time" per year due to illness. In order to reduce "lost time" in industrial concerns, we may attempt to select future employees on the basis of anticipated freedom from ill-health, or we may search for means of reducing absenteeism with present employees. Since many factors are involved, it is extremely difficult to classify prospective industrial employees on the basis of anticipated freedom from ill-health.

One of the factors commonly associated with normal and ill-health is body weight. It has been rather widely believed that persons of subnormal weight are inclined to be somewhat malnourished, and accordingly possess lower resistance to various infections and diseases. On the other hand it seems to be generally accepted that persons excessively overweight develop high blood pressure and other abnormal conditions which reduce their efficiency. If these two theories are tenable, then in selecting future employees, other things being equal, preference should be given to those individuals who approximate the ideal weight for their age and height. Accordingly, it has seemed highly desirable to attempt to correlate the "lost time" of a sizeable group of industrial employees with their body weight.

THE INFLUENCE OF BODY WEIGHT ON INDUSTRIAL ABSENTEEISM

The subjects selected for this study were so chosen as to be representative of men and women engaged at office, light machine and heavier machine work. These subjects were classified according to their body weight. For this purpose the procedure outlined in a previous paper (2) was followed. The four groups, to which the subjects were assigned,

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were formed according to Emerson's (3) suggestion that persons within 7 per cent of ideal weight should be considered of average weight; persons more than 7 per cent above ideal weight, as overweight; and persons more than 7 per cent below ideal weight, as underweight. Hence, Group I consisted of men and women more than 7 per cent below the ideal weight, Group II consisted of persons between ideal weight and 6.9 per cent below ideal weight, Group III consisted of those between ideal weight and 6.9 per cent above, and Group IV consisted of those more than 7 per cent above the ideal weight. In order to collect data concerning the second portion of this study, namely, the influence of the administration of cod liver oil on industrial absenteeism (4), approximately one-half of the subjects were given cod liver oil as a supplement to their normal home dietary. All of these subjects received five tablespoons of cod liver oil per week during the mid-morning or mid-afternoon rest period. The subjects receiving cod liver oil were assigned to four weight groups similar to those previously described.

Obviously it is preferable in investigations of this character to provide for an equal number of subjects in each group. In this instance it was extremely difficult to arrange for eight equal-sized groups in which were persons uniformly distributed in the three types of work, namely, office work, light machine work, and heavier machine work. Furthermore, it has been impossible, under the economic conditions existing during the past three years, to anticipate at the beginning of the experimental period the number of future transfers from one type of work to another, the number of resignations, and the number of necessary dismissals from service. As a consequence, the number of subjects in the different groups is not identical. However, the absences for all groups have been reduced to a percentage basis which permits of comparisons between groups. Such comparisons should be of considerable significance since the eight groups represent 1770 experimental periods of twenty weeks' duration.

The experimental period for all eight groups was during the winter months, when the amount of absenteeism is greatest and when colds and similar troubles are most prevalent. The lengths of the experimental periods were 21 weeks, 19 weeks, and 20 weeks, for the winters of 1930–31, 1931–32, and 1932–33, respectively. Absences due to accidents or surgical operations have not been included in this study.

The data that are being reported for each of the eight groups includes the number of persons; the total number of working hours; the total hours absent; the average number of hours' absence per person; and the per cent absence for each of the three years.

On referring to table 1 for the controls, it will be noted that the highest percentage of absences, 4.73 per cent, occurred during the winter of 1931–32 in the excessive weight group, and the minimum, 1.86 per cent, occurred during the winter of 1932–33 in the two groups which were within 7 per cent of ideal weight. The average percentage of absences for the different weight groups for the three successive winters were:

TABLE 1

The relation of body weight to industrial absenteeism (control subjects)

	1930–31	1931–32	1932–33
Group I. 7% or more *below* ideal weight			
Number of persons	113	85	93
Total working hours	101,015.25	63,242.00	71,164.25
Total hours absence	3,846.26	2,413.91	1,613.63
Hours absence per person	34.04	28.39	17.35
Per cent absence	3.81	3.81	2.27
Group II. 0.1–6.9% *below* ideal weight			
Number of persons	79	68	72
Total working hours	71,473.50	50,346.00	56,407.00
Total hours absence	2,069.85	963.66	1,051.96
Hours absence per person	26.20	14.17	14.61
Per cent absence	2.90	1.91	1.86
Group III. 0.0–6.9% *above* ideal weight			
Number of persons	72	58	79
Total working hours	64,502.00	42,740.00	61,375.50
Total hours absence	2,873.33	1,714.97	1,143.88
Hours absence per person	39.90	29.57	14.48
Per cent absence	4.45	4.01	1.86
Group IV. 7% or more *above* ideal weight			
Number of persons	91	71	98
Total working hours	78,036.00	51,559.00	75,137.00
Total hours absence	2,673.95	2,437.45	1,777.08
Hours absence per person	29.38	34.33	18.13
Per cent absence	3.43	4.73	2.37

3.32 per cent for Group I; 2.29 per cent for Group II; 3.46 per cent for Group III; and 3.36 per cent for Group IV.

On the basis of these figures, it would appear that the extent of absenteeism was very similar for three of the four weight groups, namely, Groups I, III and IV. The least amount of absenteeism occurred in the group between ideal weight and 7 per cent below ideal weight. If these data are extensive enough to permit practical application of the conclusions, it appears that, other factors being equal, prospective employees should be selected from persons slightly below ideal weight.

The results obtained with the group receiving cod liver oil are different from those obtained with the controls. The maximum absenteeism, 3.66 per cent, was in Group VI (just below ideal weight) during the year 1930–31; while the minimum, 0.95 per cent, was in Group VII (just above ideal weight) during the same year. The average absenteeism for the three consecutive winters was 2.32 per cent for Group V (7 per cent or more below ideal weight); 2.24 per cent for Group VI; 1.14 per cent for Group VII; and 1.42 per cent for Group VIII (7 per cent or more above ideal weight). On the basis of the results obtained with the subjects who received cod liver oil, it would appear that industrial absenteeism is less likely to occur in overweight than in underweight persons, and that persons with a body weight between ideal, and 7 per cent above ideal weight, are least likely to be absent from work on account of illness. The practical application of these data would involve the selection of prospective employees from applicants whose body weight was slightly above ideal weight. At first sight these data do not appear to be in agreement with those obtained with the subjects who did not receive cod liver oil, since the least absenteeism for the subjects receiving cod liver oil was in the group slightly above ideal weight, whereas the least absenteeism for the controls was in the group slightly below ideal weight. However, if the data obtained for cod liver oil and control subjects are considered collectively it will be found that the average absenteeism of the combined cod liver oil and control subjects for the three consecutive winters was 2.76 per cent for those 7 per cent or more below ideal weight; 2.27 per cent for those between 0.1 per cent and 6.9 per cent below ideal weight; 2.53 per cent for those between 0.0 per cent and 6.9 per cent above ideal weight; and 2.81 per cent for those more than 7 per cent above ideal weight. Hence it is apparent that persons within Emerson's "average weight," or in other words within 7 per cent above or below ideal weight, are absent from work on account of illness less than those whose body weight is outside these limits. This conclusion seems to substantiate the rather generally accepted belief that industrial employees of approximately "average" body weight are preferable to those who are excessively fat or excessively thin.

THE INFLUENCE OF THE ADMINISTRATION OF COD LIVER OIL ON INDUSTRIAL ABSENTEEISM

Obviously, in considering means for reducing "lost time" of industrial employees attention should be directed to the illnesses which cause an excessive amount of lost time. Brundage (5), Sydenstricker (6), Mills

(1), and the Metropolitan Life Insurance Company (7) report that respiratory diseases such as colds, bronchial conditions, influenza, and grippe are the most serious causes of lost time. Other investigators (8–29) have reported that vitamin A tends to increase the resistance of the body to these types of infections. Since cod liver oil is known to be an extremely rich source of vitamin A, it seemed logical to test its value

TABLE 2

The relation of body weight to industrial absenteeism (cod liver oil subjects)

	1930–31	1931–32	1932–33
Group V. 7% or more *below* ideal weight			
Number of persons	80	141	150
Total working hours	68,307.75	104,338.00	116,152.50
Total hours absence	1,572.83	2,933.18	2,221.23
Hours absence per person	19.66	20.80	14.81
Per cent absence	2.30	2.81	1.91
Group VI. 0.1–6.9% *below* ideal weight			
Number of persons	38	65	89
Total working hours	35,226.50	48,708.00	67,966.25
Total hours absence	1,290.96	1,153.36	960.58
Hours absence per person	33.97	17.74	10.79
Per cent absence	3.66	2.37	1.41
Group VII. 0–6.9% *above* ideal weight			
Number of persons	30	45	60
Total working hours	25,772.25	32,160.00	45,929.00
Total hours absence	246.25	318.31	622.33
Hours absence per person	8.21	7.07	10.37
Per cent absence	0.95	0.99	1.35
Group VIII. 7% or more *above* ideal weight			
Number of persons	26	28	49
Total working hours	22,527.75	21,535.00	37,523.25
Total hours absence	407.63	272.27	485.76
Hours absence per person	15.68	9.72	9.91
Per cent absence	1.81	1.26	1.29

for reducing industrial absenteeism. Accordingly, the subjects who assisted in this investigation were divided into eight groups. Cod liver oil was given to four groups of subjects, designated as "cod liver oil subjects," and the remaining half of the subjects who did not receive cod liver oil are referred to as "control subjects."

The data reported in tables 1 and 2 on the cod liver oil and control subjects have been correlated and summarized in table 3. A comparison

of the percentage of absence for the different groups shows that the cod liver oil subjects whose body weight was 7 per cent or more below ideal weight, those whose body weight was between 0.0 per cent and 6.9 per cent above ideal weight, and those whose body weight was in excess of 7 per cent above ideal weight had a percentage of absences materially less, for each of the three years, than that of the corresponding control subjects. On the other hand the cod liver oil subjects whose body weight was between 0.1–6.9 per cent below ideal weight were absent more during the winters of 1930–31 and 1931–32 than the corresponding control subjects; the reverse is true, however, for the winter of 1932–33. We

TABLE 3

The influence of the administration of cod liver oil on industrial absenteeism

	1930–31		1931–32		1932–33		AVERAGE ALL SUBJECTS, 3 YEARS
	Cod liver oil subjects	Control subjects	Cod liver oil subjects	Control subjects	Cod liver oil subjects	Control subjects	
	per cent	*per cent*	*per cent*	*per cent*	*per cent*	*per cent*	*per cent*
Subjects 7 per cent or more *below* ideal weight	2.30	3.81	2.81	3.81	1.91	2.27	2.76
Subjects 0.1–6.9 per cent *below* ideal weight	3.66	2.90	2.37	1.91	1.41	1.86	2.27
Subjects 0.6–6.9 per cent *above* ideal weight	0.95	4.45	0.99	4.01	1.35	1.86	2.53
Subjects 7 per cent or more *above* ideal weight	1.81	3.43	1.26	4.74	1.29	2.37	2.81
Average all subjects	2.18	3.65	1.86	3.61	1.49	2.09	

Absence of cod liver oil subjects for three winters*.....1.10%
Absence of control subjects for three winters*.....3.10%

* Weighted average.

may wonder why the results in the two instances noted should be inconsistent with the other ten; no explanation of this condition has been found.

The maximum difference between the percentage of absence for the subjects receiving cod liver oil, and the controls, was 3.50 per cent for the subjects slightly above ideal weight during the winter 1930–31, and 3.48 per cent for the subjects in excess of 7 per cent above ideal weight during the winter 1931–32. The difference in absence was nearly as great for the subjects slightly above ideal weight during the winter 1931–32, when the controls were absent 3.02 per cent more than the corresponding cod liver oil subjects.

The average absence during the three consecutive winters for all the cod liver oil subjects regardless of body weight was 2.18 per cent, 1.86 per cent, and 1.49 per cent; whereas the control subjects were absent 3.65 per cent, 3.61 per cent and 2.09 per cent for the same periods. It will be noted that both the cod liver oil and control subjects were absent less during the winter 1932–33 than during the preceding winters. Very likely this noticeable reduction in absence is due to a number of factors, but without doubt the financial status of the subjects was of particular significance during the third winter of the investigation.

The average (weighted) percentage of absence for all of the control subjects for the three winters was 3.10 per cent. The average for all of the cod liver oil subjects for the same period was 1.10 per cent, or in other words, the control subjects were absent three times as many hours as the cod liver oil subjects. The total absence for the control group during the three winters was 24,580 hours. If these subjects had reacted to the administration of cod liver oil in the same manner as the cod liver oil subjects, their absence would have been 8,721 hours. The difference, 15,861 hours absence, considered on a 40-hour week and a $20.00 wage basis, amounts to $7,930—the additional amount of money which the control subjects would have received if they had been at work instead of absent.

SUMMARY

Men and women employed as office workers, light machine workers, and heavier machine workers were selected as subjects for a study of the influence of body weight and the administration of cod liver oil on industrial absenteeism.

The subjects were divided into groups, those 7 per cent or more below ideal weight, those from 0.1 to 6.9 per cent below ideal weight, those from 0.0 to 6.9 per cent above ideal weight and those more than 7 per cent above ideal weight. Each of the four groups was divided, and approximately one-half of the subjects were given five tablespoons of cod liver oil weekly while the remainder served as controls.

It was found that of the control subjects, the lowest percentage of absence was for the group slightly below ideal weight and the lowest among the cod liver oil subjects was for the group in which the subjects were slightly above ideal weight. From the combined data it appears that industrial workers of approximately average body weight are less likely to be absent than those who are excessively overweight or excessively underweight.

The average percentage of "lost time" of the cod liver oil subjects during the three-year period was 1.10 per cent, while that of the control subjects during the same period was 3.10 per cent, or three times that of the cod liver oil subjects.

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VITAMIN STUDIES ON PEARS

II. Vitamins A, B, and C in the Winter Nelis, D'Anjou and Bosc after a Short Storage Period[1]

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THE experiments here reported are the second of a series on the vitamin content of pears in which it will be shown to what degree the vitamin content varies according to variety, district grown and period of storage. The present paper deals with the vitamins A, B (complex) and C values of three varieties after an optimal period of storage.

The first of this series (1) reported that the vitamin A content of the D'Anjou, after prolonged storage, is 2 Sherman units per ounce, the Winter Nelis, 5 units. The feeding of these two varieties continued for two months and one month, respectively, after the end of the usual marketing period. This subjected the pears to a very rigorous test—one that does not represent fairly the condition of the fruit at the actual time of its consumption. It therefore seemed advisable to repeat the work in order to determine the effect of prolonged storage on the vitamin content, as well as the vitamin activity of the fruit at the time of its consumption. The Bosc pear was included in this study since it is marketed at the same time and is not so susceptible to prolonged storage as the other two varieties.

No further work on the vitamin content of pears has appeared since the publication of the first report, with the exception of an article (2) on the vitamins B and G content of Bosc pears. For a review of the literature the reader is referred to the earlier report.

METHODS

The three varieties used were obtained from 3 fruit districts adjacent to Portland. Since the first tests were on pears obtained from the Medford district, it was necessary, in order to determine the effect of different periods of storage, to have a second lot from the same district. In addition, in order to contrast any possible effect of differences due to point of origin, duplicate lots of pears were obtained from the Hood River (Oregon) and Yakima (Washington) districts. No attempt was made to determine regional variations in the vitamin content of the Bosc. The

[1] The expenses of this research were met by a grant from the Oregon-Washington Pear Bureau. Received for publication, March 15, 1934.

handling of pears and other procedures were the same as those described in the first paper.

Usually the Bosc is off the market by January 15; the D'Anjou, April 15, and Winter Nelis, May 15. Although they may be obtained after these dates, they are not considered to be in optimal condition. The feeding tests were conducted during that period of storage when the fruit is considered to be in optimal condition. The feeding of the Winter Nelis from the two districts was conducted over the same period and ended 10 days prior to the end of the marketing period. With the D'Anjou, samples from the two districts were fed so that the test period for the Hood River specimens terminated 5 weeks before the end of the marketing period, while the Medford D'Anjou experiments terminated at the end of this period. As shown later, this difference accounts for the variations observed in these two tests.

In the vitamin A tests, pears were added in quotas ranging from 5 to

TABLE 1

Periods of feeding various samples of pears

VARIETY OF PEAR	FEEDING BEGAN	FEEDING ENDED
Medford Bosc	November 23, 1932	January 22, 1933
Medford D'Anjou	February 13, 1933	April 19, 1933
Hood River D'Anjou	January 9, 1933	March 10, 1933
Medford Winter Nelis	February 13, 1933	May 5, 1933
Yakima Winter Nelis	February 13, 1933	May 5, 1933

20 grams; in vitamin C tests, amounts varied from 4 to 24 grams; and in vitamin B tests, 4 to 12-gram levels were employed.

RESULTS

Vitamin A. Twenty grams was the minimal amount of Bosc pear capable of keeping all the animals alive over the experimental period. On the basis of weight gain for this period (see table 2), the unitage was set at 2.6. Reference to the pathological findings, however, (see table 3) will show that the 20-gram group was entirely protected from signs of vitamin A deficiency. Fifteen grams (Group III) were sufficient to bring about a marked improvement over Group II. Since many stock animals frequently show slight signs of rhinitis and otitis media, we feel that 20 grams may be considered as the minimal protective dose (m.p.d.). In accordance with former procedure (3), this is equivalent to a vitamin A potency of 3.6 units. We do not attach too much importance to the

TABLE 2

Tabulated data derived from the 20 groups of animals receiving different quotas of pear. M.A. represents Medford D'Anjou; H.R.A., Hood River D'Anjou; M.W.N., Medford Winter Nelis and Y.W.N., Yakima Winter Nelis

Further details are explained in the text

GROUP		DIET SUPPLEMENT	AVERAGE INITIAL WEIGHT	AVERAGE FINAL WEIGHT	AVERAGE TOTAL GAIN	SHERMAN UNITS PER OUNCE	DAYS DEPLETION PERIOD	REMARKS
Bosc	1	5 grams Bosc	103	—	—	—	30	Died within 28 days
	2	10 grams Bosc	100	90	−10	—	30	One survived 3+
	3	15 grams Bosc	126	133	+7	—	30	Three survived 2+
	4	20 grams Bosc	132	173	+41	2.6	30	All survived OK
M.A.	1	5 grams Anjou	39	—	—	—	10	Died within 52 days
	2	10 grams Anjou	38	71	+33	4.0	10	Two survived 3+
	3	15 grams Anjou	39	69	+30	4.0	10	Two survived 2+
	4	20 grams Anjou	39	94	+55	3.5	10	One survived 1+
H.R.A.	1	5 grams Anjou	72	—	—	—	12	Died within 52 days
	2	10 grams Anjou	43	—	—	—	12	Died within 53 days
	3	15 grams Anjou	118	143	+25	2.0	12	All survived trace
	4	20 grams Anjou	131	163	+32	2.0	12	All survived OK
M.W.N.	1	5 grams Winter Nelis	81	95	+14	3.5	35	Died within 38 days
	2	10 grams Winter Nelis	80	146	+66	8.2	35	One survived 2.5+
	3	15 grams Winter Nelis	82	123	+41	3.4	35	One survived 2+
	4	20 grams Winter Nelis	74	148	+74	4.6	35	All survived OK
Y.W.N.	1	5 grams Winter Nelis	84	—	—	—	35	One survived 2+
	2	10 grams Winter Nelis	84	90	+6	—	35	Two survived OK
	3	15 grams Winter Nelis	68	75	+7	—	35	Two survived trace
	4	20 grams Winter Nelis	78	137	+59	3.7	35	Three survived OK

TABLE 3

Tabular arrangement of autopsy findings

The least amount of supplement affording complete protection against vitamin A deficiencies is accorded a value of 2.4 units. Thus B-4 group received 3.6 units of vitamin A.

GROUP	RAT	RESPIRATORY TRACT			GASTRO-INTESTINAL TRACT		URINARY TRACT		EYES	REMARKS
		Lungs	Nasal sinuses	Middle ear	Stomach and intestines	Tongue abscesses	Cystitis	Pyelonephrosis		
B 1	1♀	++++	++		+				+	Died pneumonia
	2♀	+		++	++++	+++	+++		+	Died hemorrhages
	3♀	++++	++	+++	+	++++	++++	+++	+	Died uremia and pneumonia
	4♀	+++	−	−	++	++	++++			Died pneumonia
B 2	5♀	+++		+++	+	+++	++++ Stones	++++	+	Died uremia and pneumonia
	6♀	++++	+++	+++	++++	++	++++			Died pneumonia
	7♀	+++	++	−	−	−	+		−	Died pneumonia
	8♀	−	++	+	−	+	+++	−	−	Survived
B 3	250♂	+++	+	−	++++	−	?		+	Partly eaten—died pneumonia
	260♂		++		±	+	++++ Stones			Survived
	270♂	−	−	−	+	−	−	−	−	Survived
	280♂		−	+	+++	−	−	−		Survived
	170♂	++++	+++	+	++	+				Died pneumonia
B 4	290♂	−	−	+	++	−	−	−		Survived
	300♂	−	−	−	++	−	−	−	−	Survived
	31♂	−	+	−	+	−	−	−	−	Survived
	32♂	−	−	−	+	−	−	−	−	Survived
M.A. 1	71♀	+	−	−	++	−	+++		++	Died pneumonia
	74♀	+	++	−	++++	++	++	+++	−	Died uremia
	10♀	+	+	−	−	−	+++	+	+	Died uremia
	14♀	++	+	++	−	++	++	++	+	Died uremia
M.A. 2	60♀	+++	+++	++	++++	+	++++	+++	±	Died uremia and pneumonia
	62♀	++	+++	++	−	++++	−	−	+++	Survived
	73♀	++	+	++	++++	++	++	++		Died pneumonia and uremia
	63♀	++	+++	++	+	++++	++++ Stones	++	++	Survived

M.A. 3	58♂	++	++++	++	+++	++	++	++	Survived
	59♂	−	+++	+++	−	++	+++	−	+++	Died uremia
	67♂	+	++++	++++	−	++++	+		+	Died starvation—brain abscess
	71♂	++	++	++++	++	+	++	−	−	Survived
M.A. 4	65♂	++++	++	++	−	+	−	−	−	Died pneumonia
	67♂	?	?	−	?	−	?	?		Partly eaten
	69♂	++	++	±	+	−	+++	±	±	Survived
	70♂	+++	−	+	+++	+	?	−	+	Partly eaten
H.R.A. 1	8♀	++	+	−	?	−	++++ Stones	+++	++	Partly eaten—died uremia
	9♀	++	−	−	++	−	++	−	−	Died pneumonia
	10♀	++	−	+	?	−	?	−	−	Died pneumonia—partly eaten
	11♂	−	−	−	++++	−	+++	−	++	Died uremia
H.R.A. 2	1♀	++	++	++	−	+++	+++		+	Partly eaten—died pneumonia
	2♀	+	−	−	+	−	++++	+	+	Died uremia
	3♀	?		−	?	−	?	?	+	Eaten
	4♀	−	+	+++	−	+++	−			Died starvation
H.R.A. 3	54♂	−	−	−	+	−	+	−	+	Survived
	55♂	−	−	−	+	−	−	−	−	Survived
	56♂	−	−	−	++	−	−	−	+	Survived
	57♂	−	−	−	++	−	−	−	++	Survived
H.R.A. 4	50♂	−	−	−	−	−	−	−	−	Survived
	51♂	−	−	−	+	−	−	−	−	Survived
	52♂	−	−	−	−	−	−	−	±	Survived
	53♂	−	−	−	+	−	−	−	−	Survived
M.W.N. 1	56♂	+++	+	+	−		−	++		Died pneumonia
	46♂	+++		++	++					Died pneumonia
	76♂	+++	−	−	−	−	+			Died pneumonia
	81♂	−	−	+	+++	+	++	−	−	Survived
M.W.N. 2	55♀	−	−	−	−	−	−	−	−	Survived
	61♀	+++	−	−	−	−	−	−	−	Died pneumonia
	75♀	−	−	−	+	−	−	−	−	Survived
	80♀	+	+	++	+	−	++++ Stones		−	Died uremia

TABLE 3—*Concluded*

GROUP	RAT	RESPIRATORY TRACT			GASTRO-INTESTINAL TRACT		URINARY TRACT		EYES	REMARKS
		Lungs	Nasal sinuses	Middle ear	Stomach and intestines	Tongue abscesses	Cystitis	Pyelonephrosis		
M.W.N. 3	85♂	++++	++	+	+	−	−	−	−	Died pneumonia
	87♂	++	++++	++++	+		+		+	Died pneumonia
	4♂		±	+	+	+			+	Survived
	5♂	−	−	−	+	−	−	−	−	Survived
M.W.N. 4	6♀	−	−	−	−	−	−	−	−	Survived
	13♀	−	−	−	−	−	−	−	−	Survived
	82♀	−	−	+	+	+	−	−	−	Survived
	89♀	+++	−	−	−	+	+		−	Died pneumonia
Y.W.N. 1	53♂	+	−	−	±	−	++++	+++	−	Died uremia
	74♂	?	?	+++	?	++	+++	?	−	Partly eaten
	88♂	++++	++++	+	+		++			Died pneumonia
	93♂						++++	−	+	Died
Y.W.N. 2	54♂	−	+++	++	+++	−	++	−		Survived
	62♂	+	±	±	++	−	−			Died
	83♂	+++	++	+	++++	+	++	++		Died pneumonia
	84♂	++	−	−	++	−	+++		±	Died pneumonia
Y.W.N. 3	78♀	+	++		+++		+++ Stones	−		Survived
	79♀	+	+	−	+	−	++++		+	Died uremia
	90♀	++	+	+	+++	−	−		+	Died pneumonia
	92♀	++	++++	−	+	−	+	−	−	Died pneumonia
Y.W.N. 4	86♀	−	±	−	±	−	−	−	−	Survived
	91♀	−	+	−	++	−	−	−	−	Survived
	94♀	−	−	−	−	−	−	−	−	Survived
	95♀	−	−	−	−	−	−	−	±	Survived

plus signs entered under the gastro-intestinal tract in Group IV, for we feel that we are quite sensitive on this particular point (4). In view of our observations on lesions in the alimentary system and vitamin A deficiency, we would rather record our findings in this manner than to record nothing at all. Formerly, lesions in the stomach and intestines that we now designate by 1+ or 2+ would not be recorded at all. With these considerations in mind we have accorded a rating of a little over 3 units for the vitamin A content of the Bosc pear.

Twenty grams of Medford D'Anjou did not constitute a minimal protective dose since all the animals receiving this allottment did not survive the experiment. The weight gains, while indicating a unitage of about 4, cannot be considered final because of the death of some of the group. On the other hand, 15 and 20 grams of Hood River D'Anjou permitted all the animals of these groups to survive the experiment. Gains in weight of these two groups indicate a unitage of 2. It will be observed, however, that the initial weights of the animals of these groups show greater gains during the depletion period than is usually the case. This will detract somewhat from the total final gain. This same factor enters into considerations of the unitage for the Bosc, and is another reason for believing that a unitage of 3 for this variety is a little low. Reference to the pathological findings (table 3) shows that 20 grams of Medford D'Anjou did not constitute a minimal protective dose. These animals rated between a 2+ and a 3+ vitamin A deficiency. The assumption that 30 grams would have constituted a minimal protective dose would accord this pear a unitage of 2.4. On the other hand, the early depletion of vitamin A reserves, as indicated by the initial weight, provided for a gain of sufficient degree to allow a unitage of nearly 4. A minimal protective dose, 15 grams of Hood River D'Anjou, implies a potency of 4.8 units. It is therefore probable, that the correct unitage for the D'Anjou is in the neighborhood of 4 units. The variations noted above can be largely ascribed to the fact that the Medford D'Anjou was fed at a later date than the Hood River variety, thus accounting for a greater destruction of vitamin content in the former.

The results of feeding the Winter Nelis were better than with either of the other two varieties. The m.p.d. of the Medford Winter Nelis was 20 grams. This indicates a potency of 3.6 units. For this variety the gains in weight indicate a unitage of 4.9. The Yakima Winter Nelis has the same m.p.d. On the basis of weight increments the unitage is 3.7. For this variety, then, a potency of 4 units is indicated.

Vitamin C. Twenty-seven guinea pigs, averaging 328 grams in weight,

were used in the determination of the vitamin C content of the Bosc. The amounts of pear fed ranged from 4 to 24 grams. Only one animal in this group survived the experimental period of 90 days. Autopsy at the end of this time showed it to have 2+ scurvy. The amount of pear this pig received was 12 grams. Our experience has been that when an amount of supplement in excess of 12 to 16 grams is necessary, even though more vitamin is thus made available, the reduction in other necessary components of the diet entailed by such a high pear inclusion operates against the success of the test. The amount of vitamin C as determined in this test does not exceed 2.5 units; it is probable that it is even less than this.

Twelve guinea pigs of the same average weight as the preceding group were fed various amounts of Medford D'Anjou ranging from 8 to 20 grams. Animals on all the levels survived the experiment and gave no evidence of scurvy on autopsy. In fact they manifested gains in weight ranging from 52 to 73 per cent. We did not feed a smaller inclusion and thus cannot state the minimal protective dose. The Medford D'Anjou therefore possesses not less than 4 units per ounce of vitamin C. The Hood River D'Anjou gave the same results.

Of the 13 guinea pigs fed various amounts of Medford Winter Nelis, 4 survived. Three of these showed swollen, stiff joints. The fourth was normal. Three animals getting Yakima Winter Nelis survived. The smallest amount of pear fed to normal survivors was 12 grams. This was true of both lots. One animal receiving 8 grams survived but manifested slight signs of scurvy. These findings place the amount of vitamin C in the Winter Nelis between 2.5 and 3.8 or a little better than 3 units.

Vitamin B-complex. The period of these tests, was in most instances between 34 and 54 days. Twelve grams of Bosc appeared to be the least amount of pear that would provide for a constant gain in growth (see chart 1). During the period in which the 12-gram level was employed, the animals grew at a rate of 15 grams per week. This implies a potency of 12.5 units per ounce. Ten and 12 grams of D'Anjou provided for a gain in weight of 7 and 9.1 grams per week. This is equivalent to a unitage of 7. The Winter Nelis at a 6-gram level was productive of a weight gain of 15.6 grams per week, or 26 units.

DISCUSSION

Chart 1 reveals an interesting situation which may make a determination of unitage of the B-complex on the basis of weight gains somewhat

complicated. During an initial period of 41 days, 4 grams of the fruit was fed. In all instances this produced only a temporary gain in weight, and in order to bring about a restoration in growth more pear was necessary. In the subsequent 44 days, 8 grams of Winter Nelis was replaced by 6 grams without material effect on the steady growth of the animals. This variety was by far the most potent, exceeding the other two by having at least twice as much of the vitamin. With the Bosc, an addition of 12 grams per day caused a restoration and good rate of growth. That this represented close to the bare requirement may be seen

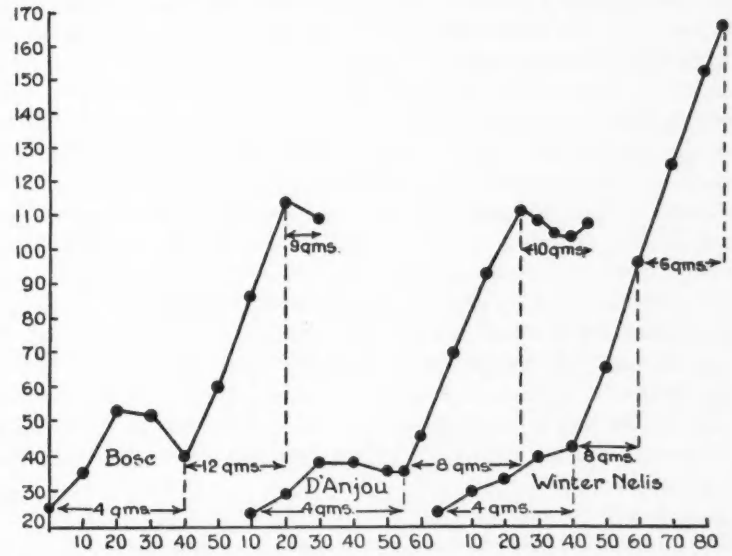

CHART 1. COMPOSITE GROWTH CURVES OF THE GROUPS OF ANIMALS RECEIVING VARIOUS AMOUNTS OF PEAR AS THE ONLY SOURCE OF THE VITAMIN B COMPLEX

from the fact that after 22 days on this supplement a reduction of the daily quota to 9 grams caused a loss in weight. For the D'Anjou, 8 grams produced a good resumption of growth. However, when a weight of 115 grams had been attained, a steady loss developed which was barely corrected by increasing the quota to 10 grams. Therefore, an amount of vitamin B-complex necessary to provide for a steady growth increment throughout an experimental period of 56 days would represent an amount in excess of the needs of the animal for the earlier part of the period. Furthermore, the relatively larger quota during the earlier period would

provide for a greater weight gain. If the pear supplement contains a relative disproportion in those components making up the B-complex, then that fraction present in the least amount will prove to be the limiting factor. Such considerations as these make it advisable to determine the B and G factors separately. The chief value of the B-complex assays lies in the determination of the least amount of fruit necessary to produce a consistent gain in weight, and offers a rough estimate of the amount of the complex present. Douglas, *et al.* (2), reported that 1.5 grams of dry Bosc (12.44 gms. fresh pear) was the lowest level that provided for steady growth throughout the experimental period. Our experience is the same. The differences in unitage assigned is undoubtedly due to the methods and calculations employed.

A comparison of the vitamin A values of the D'Anjou from the two districts does not provide a great enough difference in values to be significant, especially when the deteriorating influence on the vitamin of 5 weeks' additional storage is considered. The higher unitage of the Winter Nelis and the more consistent results seem to make it quite clear that, in these two varieties at least, variation in source does not cause a corresponding variation in potency.

The D'Anjou from the two districts was equally potent in the antiscorbutic factor. The results with the Winter Nelis were more variable. The three surviving pigs receiving Yakima Winter Nelis had weight gains ranging from 10 to 75 per cent of the initial weight. The four survivors receiving Medford Winter Nelis lost in weight, except for one that showed a 23 per cent gain. We do not believe that this difference in the two districts is significant.

In our earlier report we stated that the D'Anjou has a potency of 2 Sherman units per ounce, the Winter Nelis, 5. Under the conditions of this experiment, the corresponding potency in vitamin A is 4 and 4. We believe this to be good agreement between the two series. It indicates that prolonged storage has an appreciable effect on the vitamin A potency of the two varieties, particularly with the earlier D'Anjou.

The vitamin C potency of the two kinds of pears was reported earlier as being 2 for the D'Anjou, and 3 for the Winter Nelis. Under conditions of shorter storage it was found that the vitamin content was notably higher, the D'Anjou having a potency of slightly better than 4 units, the Winter Nelis a little over 3 units. Thus it will be seen that prolonged storage affected the D'Anjou by reducing its vitamin content to half its former value. Similar conditions did not affect the Winter Nelis to the same extent, since it is naturally a later variety.

There is little difference in the vitamin A and C values of the three varieties of pears studied. With vitamin B, however, a marked difference is apparent, the Winter Nelis having at least twice the value of the Bosc and the D'Anjou. There was no gross evidence of any marked imbalance between the two common components of the B-complex.

CONCLUSIONS

1. Under optimal storage conditions, the vitamin A value of the D'Anjou and Winter Nelis is 4 Sherman units per ounce, the Bosc, 3 units.

2. Under similar conditions the vitamin C value of the three varieties is as follows: Bosc, 2.5; D'Anjou, 4; and Winter Nelis, 3 units.

3. There is no difference in the vitamin A and C values of the varieties studied that can be ascribed to the region in which the fruit is grown.

4. Prolonged storage has a destructive effect on vitamins A and C, a continuation of 2 months after the fruit should be off the market causing a decrease in vitamin content of nearly 50 per cent. The Winter Nelis, a later variety, is capable of preserving its vitamin potency better then the earlier D'Anjou.

5. Minimal amounts of each of three varieties that must be fed to provide a steady gain in weight over a 56-day experimental period are as follows: Bosc, 12 grams; D'Anjou, 10 grams; and Winter Nelis, 6 grams. On the basis of average weekly gains in weight, the unitage of these three varieties is as follows: Bosc, 12.5; D'Anjou, 7; and Winter Nelis, 26.

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EDITORIAL

Mineral Metabolism[1]

There is one large storehouse of inorganic salts from which large quantities of base and acid can be drawn in time of need. The bones resemble the fat storehouses in the caloric requirements of the body. Calcium and phosphorus can be deposited in the bones and can be, in turn, drawn from the bones to satisfy the immediate needs of the organism as a whole.

In the metabolism of bone, clinicians are likely to speak too simply of calcium metabolism. It must be remembered that phosphates are fully as important as is calcium. This is quite well recognized now in rickets where an inadequate phosphate intake may be of prime importance. An excellent example of this is found in the work of Theile,[2] who found that cattle on the South African veldt had the extraordinary habit of eating the bones of dead animals of their own kind. Why should herbivorous animals eat bones? This was found to be due to a deficiency of phosphorus in the grasses used for grazing, and when adequate amounts of inorganic phosphates were made available to the cattle the osteophagia ceased. This discovery serves as an excellent example of the need of the body for phosphate, a radicle equally as important as calcium, to which it is so closely related.

The metabolism of calcium and phosphorus differs from that of the other inorganic salts because they are continuously going in and out of the bones, and are continuously being excreted, even in starvation. If the normal level of calcium in the blood is changed, effects are seen in muscle tone. A low blood calcium, below 7 mg. per cent, is associated with an increased neuro-muscular irritability, or tetany. A high blood calcium leads to low muscle tone, an increased calcium excretion, and abnormal changes in the bones and kidneys.

The maintenance of this normal calcium level is more complicated than that for sodium, since several factors other than the kidney affect it. First, there must be adequate absorption of calcium, and in certain diseases like steatorrhoea or Gee's disease it cannot be adequately accomplished. In this digestive disease there is difficulty in the absorbing of fats and soaps, which results in the excretion of insoluble calcium

[1] Abstract of paper by Joseph C. Aub, read before the New York Academy of Medicine Graduate Fortnight, Oct. 25, 1933, and published in the *Bulletin of the New York Academy of Medicine*, 10: 82–94, Feb., 1934.

[2] Thieler, Sir Arnold, Lambsiekte in Cattle in South Africa, Dept. of Agriculture, Union of South Africa, January, 1927.

soaps in the bulky diarrhoea, and thus prevents the absorption of calcium within the body. The result is a gradual thinning of the bones with the development of osteomalacia, an eventual fall of the blood calcium, and tetany. Vitamin D improves the absorption of calcium from the intestine and in very large quantities will relieve this condition.

Except for this effect of vitamin D, little is known of the factors that influence the absorption of calcium. Once absorbed, calcium may be either deposited in the bones or excreted. The retention in the bones may be large, certainly as much as a gram a day for short periods. This storehouse, however, is not an inert deposit, for the bones are continuously giving up and replacing their salts, and there is good evidence that calcium probably leaves one part of the bones to be redeposited in other parts. How this calcium is deposited and liberated is not always clear. Certainly there are cells, the osteoblasts, associated with new bone formation; and the osteoclasts, associated with the absorption of bone tissue. Osteoblasts are described in bone that is being depleted by parathyroid hormone, and in hyperthyroidism. It is not known whether bone salts can be absorbed or deposited without the presence of these cells. It is hard to believe that the ingestion of acid salts, which increase calcium excretion, causes this liberation from bones by the activity of osteoclasts, but this problem is not yet settled. At any rate, bone salts are easily pulled from or deposited in the bones.

What are the known factors that influence this store and influence the level of calcium in the blood? They include internal secretions, vitamins, and foods. The parathyroid glands are probably the most important of these factors in the normal regulation of the body calcium. Their primary influence seems to be upon the level of blood calcium and phosphorus. From a normal level of 10 mg. per cent, the calcium falls after parathyroid extirpation to 4 or 5 mg. per cent. Signs of intense tetany develop in about twenty hours, when the blood calcium has fallen below 7 mg. per cent. The lowered serum calcium causes intense irritability of the neuromuscular mechanism, and the laryngeal and muscular spasms and generalized convulsions are evidence of this. Calcium excretion on a low calcium intake falls to a minimum. When parathormone, the active principle of the parathyroid gland, is injected intramuscularly there is a latent period of four hours, after which the blood calcium rises and tetany disappears for approximately twenty hours. The amount of calcium absorbed from the intestines is not influenced by parathormone, and the increased calcium in the blood and urine, resulting from overdoses of the hormone, comes from the bones. This is

evident from the experimental work of Jaffe and Bodansky,[3] which showed bone changes even with probably adequate calcium in the food. With very high calcium diets, however, these cases can be maintained in calcium equilibrium or even a positive balance.

The action of parathormone is mimicked in every way by large doses of vitamin D. The differences seem to be that viosterol aids in the absorption of calcium from the intestine, and its effect lasts for days, while parathormone lasts for only a matter of hours. It is important to remember that a high blood calcium level is nearly always due to overactivity of the parathyroid glands or to overdosage with vitamin D. There may be a very rare case associated with an excess of protein in the blood. A low blood calcium level means parathyroid or vitamin D deficiency, or a deficient calcium absorption. Calcium is also somewhat reduced when plasma proteins are low (Peters). Although the parathyroids and vitamin D are the factors that affect blood levels of calcium, they are not the only influences that affect calcium metabolism. Abnormal calcium excretion can be stimulated by other means. The thyroid hormone is an important influence, since oversecretion of the thyroid gland increases the excretion of calcium enormously, while in myxedema the demands upon calcium stores are markedly reduced. The thyroid secretion exerts no effect upon the normal level of blood calcium. Its action seems rather to stimulate the catabolism of bone, a process that results in excessive excretion.

An acid diet is a factor of importance, since a large excess of acid can increase the excretion of calcium approximately as does parathormone, but this factor again does not appreciably affect levels in the blood.

Schmidt and others have shown that an enormous amount of calcium can be stored in the bones during pregnancy. That it is important to accomplish this by a high calcium diet throughout pregnancy is self evident when one realizes that a negative calcium balance can probably not be avoided throughout the period of lactation.

It is also important to realize that several heavy metals behave in the body approximately as does calcium. Lead, mercury, and radium are influenced by the same procedures that influence calcium. They are stored in the bones and are liberated from this storehouse in increased amounts when calcium is liberated.

What is the interrelationship in body fluids of these ions that are stored, such as calcium and phosphates, to those that have no storehouse,

[3] Jaffe, H. L., and Bodansky, A.: J. Exper. Med., 52: 669, 1930.

like sodium and chloride? In the first place, the concentration of the calcium and phosphorus is relatively very small. Variations that double their concentration would not affect the total level of acid or base in the plasma more than occurs physiologically, and there does not appear to be much readjustment in other ions to such a change. These ions with low concentration in body fluids, may therefore cause dramatic signs and symptoms quite independently of other ions. Total base or chloride excretion is not influenced by the giving of parathormone, which dramatically increases the calcium and phosphorus elimination. Thus, there is a good deal of independence of excretion of each of these substances and yet they remain closely related as a whole, keeping an accurate balance between acids and bases to maintain the normal pH of the body, and keeping normal the osmotic pressure and the inorganic salt environment—a group of substances that maintains a remarkable equilibrium in spite of the possibility of individual divergence from the norm.

Codes of Ethics for Student Dietitians

Today we hear endlessly of codes for this and codes for that, and the subject may seem to grow threadbare. To some the word code may sound ultramodern, but in reality codes of professional ethics date back to the days of the Greeks and the Romans, even back to the Mosaic laws. One of the best known codes was that formulated for the medical profession by Hippocrates, known as the Hippocratic Oath, and taken by medical students on their accession to the M.D. degree. Throughout the long, difficult and at times triumphant development of the medical profession, standards of ethics have been more fully developed, yet the ancient Hippocratic Oath remains the heart and soul of medical ethics.

In an introductory report of a code of ethics for administrative student dietitians of the Women's Educational and Industrial Union, Boston, Alice Merry, one of the students, outlined the development of earlier codes. The legal profession has its canons of legal ethics, while business or commerce has more recently discovered the need for a code of ethics. When Judge Parker's Committee on Business Ethics collected codes for the Association of American Business Men, over one hundred were found, the most popular of these being that of the National Chamber of Commerce. A code is really a standard of behavior and is founded perhaps upon common sense.

The infant profession of dietetics, following the lead of older professional groups, is now engrossed in the subject of codes. One such, prepared by the student dietitians of the class of 1934, Department of

Nutrition, Presbyterian Hospital, Medical Center, New York City, under the direction of Nelda Ross, director of the department, is presented under the Association Progress Section of this JOURNAL. Another, developed by the administrative student dietitians of the Women's Educational and Industrial Union under the director of the Vocational Training Department, Mrs. Quindara Oliver Dodge, is presented at the same time. These two groups are to be commended for their well thought out presentations.

FITTING THE WORKER TO THE JOB[1]

All Americans are supposed to be born equal, but actually they are neither born equal nor do they develop alike. For every job or occupation there is a type of person who is better fitted by inclination and aptitude than are some other types. The misfits and all too many shifts from job to job, from industry to industry and from vocation to vocation also indicate that the jobs are not being filled by those best fitted for them.

For many generations the individual had little opportunity to choose beyond a very limited field of occupations. The farmer went on from generation to generation, and so with the other levels in the social and economic structure. Through history, however, we read of individuals, more venturesome than the others of their time, who did aspire to better opportunity for themselves and others. This impulse on the part of the few led to the exploration and later to the colonization of our country.

Although differences in individual ability and aptitude have long been recognized, only recently has a definite trend begun to develop toward the recognition of the differences in the adjustment and application of educational methods to the individual. In order that this educational and vocational guidance may succeed, there must be closer coöperation among industries, arts, crafts and professions, and the leaders in the educational systems. Clearer understanding of the various types of work open to them should be available to boys and girls in school. It should be possible to point out to the individual the logical sequence of jobs which offer promotional opportunities in the various fields of endeavor.

Industry recognizes three distinct steps in the process of fitting the individual to the job. Selection and placement must be as nearly

[1] Abstract of paper presented by A. B. Gates before the New York State Dietetic Association, May 14, 1934.

correct as possible; the new employee must be trained; and then the individual must be followed up closely.

The process of effective selection and placement is the first step in fitting the individual to the job. The two factors involved in successful selection and placement are that the job requirements must be known and the individual's qualifications must be determined. These factors require that a careful analysis be made of each job or occupation. This analysis must cover the nature of the tasks or duties included, the minimum requirements as to experience, training, education, mental and physical types and physical fitness, any special aptitudes necessary to fill the job satisfactorily, and the relationship of the job to other jobs and activities.

The training of the new employee begins in the employment office where he is given general instructions as to company rules and regulations. The specific training necessary to an understanding of exactly what is expected of him is provided by the department in which he is to work. He should be given the opportunity to try the work, his errors must be pointed out, and more trials and corrections need to be carried on until he understands the method and is on the way to forming a habit of the correct way to do the work.

For following up the employee, close coöperation with and from the employment department is essential so that an injustice to neither the employee nor the employer will develop.

It is necessary to remember that a large number of applicants, regardless of age, have had little or no help in determining the line of work for which they are best fitted. As a protection to the employer and in fairness to the applicant, the most effective means possible of determining the fitness of the applicant for the position in question or of deciding the field in which the applicant is most likely to succeed, should be devised. Only then can industry, including the hospital and institution, be free of inefficient operation and of its responsibility for discouraged and unhappy employees who are held in vocations for which they are not adapted.

Food for the Byrd Expedition

Planning the food list for forty men out of touch with civilization for two years was an interesting and exciting task, according to Alice M. Karslake, who had charge of planning the food list for the present Byrd Antarctic Expedition. Information on the subject was hopelessly inadequate, aside from books of the arctic explorers and pamphlets from

the government bureaus and manufacturers; neither the composition, nor even the names of the foods necessary could be found.

In compiling this list many tasks were involved: the foods had to supply an adequate diet; and they had to keep for two years, withstand freezing, and be compact, firm, and free from water and waste so they would not take up too much room or be easily crushed in shipping.

Taking the activity of the men and the temperature of their surroundings into consideration, the nutrition standard was set at 150 grams protein, 220 grams fat, 600 grams carbohydrate, yielding nearly 5000 calories per man per day. Adequate minerals and vitamins were insured through the liberal use of milk, butter, eggs, whole grain cereals, fruits, vegetables and dried orange juice.

Protein foods were listed in the form of dressed and canned meats, eggs, milk, cheese, and nuts. The meat supply would receive additions in the form of fresh whale, seal, and penguin. Storage eggs will keep only one year, therefore frozen whites and frozen yolks were necessary for the second year. Evaporated milk was included for beverages, and condensed or dried milk for cooking. Cheese and nuts are concentrated foods and keep well. Of the carbohydrates, whole grain cereals were recommended for their mineral and vitamin content. Potatoes offered the most perplexing problem as they will keep only four months, even under the most favorable conditions, and there is no good substitute. Two lists of fruits and vegetables were made, the first of fresh and canned foods and the second of an equivalent amount of dried products. Canned goods are palatable and easily prepared but they are bulky and likely to be injured upon freezing. Dried vegetables are tough and require long cooking, except those that are cooked before drying; but the last, like potato chips, are light and fragile. Fats will keep at freezing temperatures for two years; thus butter, lard and vegetable oils could all be included.

The food list also had to include foods such as turkey and plum pudding, cranberries and pickles, not because of their essential place in safeguarding the health of the expedition, but as aids in celebrations of holidays and events important to the life of "Little America." Besides the food for the expedition in winter quarters, a list of food of approximately the same nutritional value was compiled for sledding parties. This contained only very concentrated foods which could be eaten raw or cooked, such as pemmican, Eskimo biscuit, dried vegetables, dried milk, dried orange juice, sugar, flour, bacon, and milk chocolate. Pemmican is a ground dried beef, mixed with suet and raisins. It is usually

made into a thick stew with bacon, flour and dried vegetables, and eaten with Eskimo biscuit which resembles our dog biscuit in hardness, flavor and composition. Such a menu would hardly appeal to the average American but is ideal in the waste of the Antarctic.

CURRENT COMMENT

Stopping the Leaks in the Food Service

In the hospital of which the writer is chief dietitian, 1800 meals per day are served. In the period of two years during which a record of the food waste has been kept, the total of edible and inedible residue has been reduced from 4 ounces per meal to 2.7 ounces per meal, a reduction of 146 pounds per day. At a valuation of 5 cents a pound, this amounts to $2600 per year, a very welcome and important saving. It may be noted that the original figure was not an unusually high rate of waste for a hospital.

The main factors bringing about this saving seem to be as follows:

1. Every effort has been made to awaken an awareness of the problem throughout the hospital personnel, by graphs, written notices, and verbal comment. We always take pains to make any important change in the rate of waste known.
2. Increased attention has been paid to the size of servings.
3. Every effort is made to regulate the amount of food prepared.
4. Poorly prepared food is not well eaten. If a cook cannot maintain the standards of food preparation that will prevent waste, she is replaced as a costly liability.
5. Waste of individual foods is watched. The employee engaged in vegetable preparation is shown the waste graphs frequently. We insist on delivery of freshly killed meats so that the trimmings may be usable. We watch the roasting of meat to avoid over-cooking and consequent unnecessary shrinkage. Perishable foods are carefully inspected, on delivery, by a dietitian.
6. The use of by-products is planned for whenever possible.

In this last connection, the use of waste fat from both kitchen and butcher shop for making soap is one of the most profitable. This fat, when sold, usually brings a low price. Satisfactory soap for general kitchen use is easily made in the kitchen, but the use of the fat in the hospital laundry is probably more efficient. In this case, the saving is not usually credited to the dietary department, but it benefits the hospital as a whole.

In the laundry of the King County Hospitals, we find that it pays to make as much soap as we have fat for, and to supplement it with com-

mercial laundry soap chips. The available waste fat supplies about half of the soap required. To 150 pounds of fat, whose sale value is 37 cents, we add 28 pounds of laundry caustic at 4 cents a pound. The resulting soap costs $1.49 and replaces 200 pounds of laundry soap which is currently valued at about 6 cents a pound. The equipment for soap making has been installed at little cost by our own engineer. The process takes but little steam and a very little labor.—MARY W. NORTHROP, chief dietitian and housekeeper, King County Hospital System, Seattle, Wash.

OUTSTANDING FACTORS IN CONTROL OF FOOD COSTS

The increasing complexity in the economic world has made it correspondingly necessary for dietitians to give more consideration to factors in the control of food costs. Perhaps menu planning and careful selection of products to avoid waste require most emphasis as factors in the controlling of costs.

Since meats are one of our most expensive foods, definite charting of dinner meats over a period of eight weeks proved to be one of the greatest aids in this particular problem. In this way use is made of expensive and inexpensive cuts so that each may serve to counter-balance the other; a further benefit is that undesirable repetitions of like meats are avoided and better variety is afforded. Each type of meat is studied and its preparation adjusted so as to give the best product for that particular type. The next step is to plan vegetables, salads and desserts in accordance not only with fitness to meal but also with consideration of cost balance per meal, market trends, seasonable products and physical and labor set up peculiar to the particular hospital in which the food is to be distributed.

In selection of products, much waste can be avoided by checking yields of all foods and comparing the edible with the purchased portions, and adjusting purchases accordingly. Economy in preparation of fresh fruits and vegetables must be exercised and a definite decision made as to the distinct part machine and hand preparation play in this step. Special and proper refrigeration has its own particular part; storage of unripe fruits until ready for use is a problem requiring constant attention. At certain seasons the fresh fruits and vegetables have been so poor in quality and expensive in price that we have found frozen foods superior in quality, no more expensive in cost, and with no labor cost attached; in these instances it has been to our advantage to make use of them.

Much can be done to eliminate waste in cooking, by neither over-

cooking as to time or temperature, nor allowing prolonged post-stove time previous to serving. Leafy vegetables mulch, lose both color and flavor; white vegetables, such as potatoes, or turnips, become soggy, dark in color, and strongly flavored. These factors not only cut down the bulk of the product but increase waste and therefore cost, due to large portions being left uneaten.

In addition to these direct factors, a study of requirements is necessary so that a careful approximation of initial needs are known before food is prepared. This can be accomplished through standardization of serving portions and establishment of these standards throughout the entire food organization. When new dishes are tried, those well received are repeated, while those not liked are carefully studied and if some adjustment in preparation is thought needed to overcome the dislike, they are tried with this improvement; but where a general distaste predominates it is considered too expensive to experiment on individual taste cultivation.

Last, but not least, is care of left-overs. No matter how carefully planned a menu may be, this problem is sure to confront one. Our ice boxes are carefully checked twice each day; "left overs" are charted and incorporated in succeeding meals, either as previously served, or broken down and re-used in a new product. This plan has eliminated loss from uneaten foods and given us another weapon to combat increase in cost through waste.—MARY E. MCKELVEY, University Hospital, Ann Arbor, Michigan, Administration Section.

THE UNDERNOURISHED CHILD AND THE PUBLIC SCHOOLS

Lusk defines nutrition as "the sum of the processes concerned with growth, maintenance, and repair of the living body as a whole or of its constituent parts." Good nutrition implies a well built body doing its work easily and efficiently. Any deviation from this ideal of perfection must be termed subnutrition. In general practise, however, only those individuals who show marked deviation from a not too high standard are definitely classified as undernourished, and it is all too customary to single out only the extremely malnourished children for nutrition work. In reality it is highly desirable to attempt to improve the state of nutrition in all children.

The public schools, because it is an educational problem, are the logical agencies through which to work if the standard of child health is to be raised. Many schools have accepted the challenge and are incorporating health education in their curricula, teaching health not as a thing apart

but as an integral factor in all activities. Such programs have proved their worth in evident improvement of the mass of children, even in the face of the adverse circumstances of the last few years.

Nutrition, because of its intimate association with physical well-being, growth and development, is frequently the starting point for the health education program. The success of such a program is dependent upon three fundamental factors: an evaluation of the conditions found in the specific school or community; the underlying causes of substandard development; and the whole-hearted coöperation of the school administrators, the parents, and the children.

To become familiar with existing problems and to determine points for emphasis, surveys of home conditions, questionnaires and careful observations are valuable tools. The classroom teacher, if she is alert, knows whether the children under her supervision are happy, healthy and well cared for; the school nurse knows the reasons for frequent absence and their underlying causes; and the lunchroom manager may easily judge the food habits of her clientèle by observing the selection of items from the menu and the contents of boxes brought from home. When the situation has been evaluated and the outstanding health problems enumerated, the entire school should benefit by the educational efforts made to correct poor habits and establish good hygienic practises.

Correction of undernutrition is no longer a question of discovering those children who are 10 or 15 per cent below the weight quoted in so called "normal" tables, and providing them with supplementary feedings and detailed instructions; rather has it become a problem to teach all children how to live to avoid a state of subnutrition.—SOPHIA HALSTED, Nutrition Director, City of Detroit, Community Education Section.

NEW DIETS FOR CHILDREN WITH DIABETES

Normal growth and development is the right of every diabetic child. The more liberal diets of today made possible by insulin remove the need of the old time starvation diet with its accompanying malnutrition and subsequent underdevelopment.

The necessity for malnutrition is removed but unfortunately the possibility is still with us. A lack of sufficient knowledge as to what constitutes an adequate diet leads to the prescription of diets which do not permit the selection or inclusion, in sufficient amounts, of foods essential to good nutrition. To assure this adequacy and simplify the planning of diets for diabetic children in the Out-Patient Endocrine Clinic of Stanford University Hospitals, the following table is used; the requirements of

carbohydrate, protein, fat and calories are expressed in terms of grams per kilo of body weight, and conveniently arranged into two age-groups: (1) 2 to 10 years; (2) 11 to 15 years.

Diet requirements for children in grams per kilo

AGE	GRAMS PER KILO			CAL/K	FA/G
	C	P	F		
2–10 yrs.:					
Normal	10.7	3.2	3.4	86	0.36
Diabetic	5.1	2.9	4.1	69	0.7
11–15 yrs.:					
Normal	7.5	2.2	2.3	60	0.3
Diabetic	3.2	2.0	3.1	49	0.6

The normal figures and the general form of the table were published by H. Gray[1] and the present revision of the values was calculated from data published by P. White[2] in her monograph.

There is a general tendency towards higher carbohydrate diets with a consequent wider selection of foods. The use of this table insures adequate proteins and calories, and the dietitian's concern is with the *selection of individual foods to satisfy other requirements for adequate nutrition.* Certain essentials are practically guaranteed, even on a most limited diabetic diet, because of the habitual inclusion of an abundance of fruits and vegetables. At least two factors, however, require special attention, namely calcium and the antineuritic factor, vitamin B. The inclusion in the diet of 600 grams of milk and 30 grams of cheese daily, with the addition of 450 to 600 grams of fruits and vegetables assure approximately 1 gram of calcium daily, the generally accepted standard for children.[3] The inclusion of a whole-grain cereal each day, and for greater safety a vitamin B concentrate such as wheat germ, removes any sense of insecurity in regard to this essential factor for growth and appetite. Cod liver oil, or any other recognized source of vitamin D, should be included in the diet of younger children.

In case the individual requirements of the child do not conform to the diet prescription of the table, adjustments are made to insure maximum nutritional adequacy.—JEAN M. STEWART, Out-Patient Department, Stanford University Hospital, California, Diet Therapy Section.

[1] Gray, H.: Am. J. Med. Sci., 172: 394, 1926.

[2] White, P.: Diabetes in Childhood and Adolescence, Philadelphia: Lea & Febiger, 1932.

[3] Sherman, H. C.: Chemistry of Food and Nutrition, 4th ed., New York: The Macmillan Company, 1932.

Training Student Dietitians in Work Relationships

The student dietitian has a clear-cut code of ethics that she must follow in her relationship and association with the hospital during her training period. When she enters her chosen profession, she must so conduct herself as to be worthy of a profession by no means elementary. It was Dumas who said "To cook understandingly and to eat understandingly are two arts that cannot be learned from today to tomorrow."

It is essential that a dietitian have a personality that commands respectful attention. Her general appearance will add to or detract from her innate strength of character, no matter how forceful it may be, and she will do well to remember this when inclined to wear a uniform an extra day, or to neglect the shine on her shoes or the need for an extra hairpin or two. If she has a healthy, well-nourished appearance, and radiates mental and physical vitality, she is indeed happily endowed.

The student dietitian should be trained to be courteous, kind and interested in the welfare of those around her. She may then more readily foster a proper *rapport* between herself and the patient in the battle of the food complexes. An attitude of loyalty and respect toward her superiors in the institution that is giving her her training is essential. It will be helpful if she knows the policies and history of her hospital since each institution has its own traditions and standards of attainment.

Every dietitian in hospital work must be primarily interested in the educational phase of dietetics. She must know how to teach and enjoy teaching, since at some time or other practically every person in the hospital will ask for some type of dietetic advice. In order to make these precepts effective, it is well to understand the mental processes and problems of those who are to be instructed so that instruction may be adapted and made graphic for each individual. The best teacher is one who is zealous in her elected work and thereby ignites a kindred spark in others. When giving instruction it is well to forget the book and think only of the person who is being instructed.

The student dietitian will need direction in her physical, mental and emotional development. Her association with the hospital will give her new and ever-widening interests, together with increased mental and physical responsibilities. She must therefore be taught to budget her time if she is to obtain maximum results. Even worse than the simple fact of wasted hours is the danger of acquired habits of inattention, sluggish thinking, inaccurate work, and inefficient physical working ability. To relax with ease during leisure hours is a lesson that in itself

might well be learned; even leisure can be so directed as to eschew plays that are mediocre, people that are tedious, books that are unworthy of one's cultural background, and thoughts that depress the intellect. The busier a person is, the more hypercritical should her disposition of time be, and her choice of books, friends, plays or other diversions. It is well to have a hobby quite divorced from professional interests, that will serve to keep an equitable balance between work and play. So fitted and forewarned to the task, you may "Go then, and bestow pains upon your duties, never forgetting that from the moment the patient steps over the hospital threshold, it is you who are responsible for his gastronomic happiness."—FRANCES BERKELEY FLOORE, St. Luke's Hospital, Chicago, Professional Education Section.

THE HOME ECONOMIST IN FAMILY WELFARE WORK

The home economics program of the Providence Welfare Society is planned to help the social workers solve related problems which arise in the families under their care. The plan of work has developed as needs have arisen and been met by the home economist since 1909.

The work includes the compiling and revising of the budget figures used for the families. In figuring the food item, government standards of amounts are used and prices are collected from five representative stores in various sections of the city. Estimates of family needs are refigured by the workers every two months, if the total costs increase or decrease 2 per cent or more.

The clothing budget is refigured on the basis of changed prices every six months. Estimates for fuel and light vary with the seasons and are recalculated if a company changes its system of rates, or if there is a change in the price of coal or wood. Laundry, household supplies, sundries, and health care are figured once a year. Any one or all of the above items are allowed in a family's budget where the case work problem seems to warrant them.

The home economist holds conferences with staff members and participates in group discussions held at district and general staff meetings on various problems which arise. From time to time, bulletins are issued containing information on home economics subjects. Exhibits, such as one showing pictures of children with various deficiency diseases and foods which may be used in the correction of these diseases, are arranged throughout the year. A consultation service is maintained for staff members of other social agencies in the city. The home economist acts as consultant, and through her, volunteers, social workers, nurses

and workers from all types of social agencies are able to secure information which will be useful to them. From time to time other services have been extended to these agencies, such as having the home economist arrange a series of lectures on dietary needs of families for a group of nurses. A coöperative plan has been worked out with several hospitals so that the home economist can help the patient to carry out, more readily, hospital recommendations. Those interested in learning more about variety in the diet or ways of cooking new dishes are given general principles and examples on which to work out plans for their families.

A community educational and publicity program includes several radio talks and newspaper articles each year. Free literature is distributed through the waiting room and by the social workers to families known to the organization.

The home economics committee, which meets monthly with the home economist, is made up of ten women, some of whom have had special training. Their advice and ideas for planning, as well as their broader community contacts, made them very helpful.

A clothing center, through which new and used garments are distributed, is maintained under the direction of the home economist. One woman, working half time, keeps the stock in order and waits on the clients who are given orders for goods by their social workers. Pans, dishes and household equipment and furniture are also distributed through the center.

Besides one salaried home economist and the home economics committee members, there are usually two or three part-time volunteers. A good number of these volunteers are graduates of Rhode Island State College, having majored in home economics.—ALICE E. WOLFE, Home Economist, Family Welfare Society of Providence, Rhode Island.

BOOK REVIEWS

Diet Manual, University of Nebraska College of Medicine. By members of the Staff, University Hospital, Omaha, Nebraska, 1933, pp. 82, Price $1.25.

This is a well-prepared loose leaf folder of mimeographed material comprising classification of foodstuffs and definition of terms, the normal diet, departmental orders, digestive diets, metabolic diets, quantitative diets, test diets, pediatric diets, and tables such as basal metabolism, surface area formula, method of calculating total energy requirement, foods arranged approximately according to content of carbohydrate, food composition, caloric food values (infant), approximate values of prepared foods, and conversion factors.

The authors feel that since different dietetic case groups have so much in common, it is highly practical, both from the standpoint of the patient and the institution, to utilize standardized dietary procedures. A general description of each diet is given with some of its indicated uses and bibliographical references. The details necessary to include in the ordering of each diet are added, with advice regarding instructions to patients.

Miss Phillips, the staff dietitian, assisted in the preparation of the material.

A comprehensive index is included.

A Primer for Diabetic Patients, Fifth Edition Revised. By Russell M. Wilder, M.D. Philadelphia: W. B. Saunders Company, 1934, pp. 172. Price $1.75.

The first edition of this little book was one of the very few that had appeared prior to the discovery of insulin. Through its several editions this "Primer" has gradually widened its scope of usefulness until now within its compact covers we find concise yet complete information for the guidance of both patient and physician. Among the added items of merit in this last edition is a chapter giving simplified instructions for the use of insulin and for the planning of diets to meet all nutritional needs; a food "Nomogram" and a section devoted to 120 questions to which the well-instructed patient should be able to give suitable answers. The section devoted to substitutions and recipes seems decidedly worthwhile. Many of the recipes were supplied by Mary E. Foley, dietitian-in-chief of the Kahler Hospital group, Rochester, Minnesota. Other important dietary contributions were made by Florence H. Smith of the Department of Medicine, University of Chicago, and Sister Mary Victor, dietitian-in-chief of St. Mary's Hospital, Rochester, Minnesota. Sister Victor was responsible for the simplified diet instructions incorporated for the first time in this edition.

M. P. H.

Home Economics Aids Home Stabilization in Michigan. Published by the Michigan Home Economics Association and the Michigan Dietetic Association, 1934, pp. 24. Price 10 cents.

In February, 1933, at the request of Dr. Louise Stanley, a meeting was held for the purpose of working out problems arising from the present economic situation. Members of the home economics group and the state dietetic association coöperated in the work. This pamphlet covers the subjects of organization procedures for relief work; wise money practices; resourceful clothing management; adequate food selection; wholesome family living; and work relief in education. Bibliographies pertaining to these subjects and graphic plans for the organization of state welfare work are included.

Food Customs from Abroad. By Charlotte Raymond and the Nutritionists of the Massachusetts Department of Public Health, 1934, pp. 16.

This pamphlet is designed for the purpose of acquainting nutrition workers with the food customs of their clients from foreign countries. The following nationalities are discussed: French Canadian, Irish, Italians, Jewish, Near East, Polish, Portugese. For each group there is a brief discussion of the types of immigrants and their interests, a typical day's menu, the good points, points

to be encouraged, food habits and bibliography. By concise outline arrangement of their material, the authors have been able to include a vast amount of information within this pamphlet. All dietitians, particularly those interested in community education, should find this booklet of interest and value. Single copies are available through the Massachusetts Department of Public Health.

Health-Giving Dishes. By Bertha Brupbacher-Bircher. New York: Longmans, Green and Company, 1934, pp. 239. Price $2.50.

In this book we have ways and means of preparing foods, particularly vegetables, raw "greenstuff" and fruits, along the lines laid down by the head of Dr. Bircher-Benner's Sanatorium in Zurich, Switzerland. The use of "natural" and uncooked food is advocated, and meat is to be avoided. The author believes that all kinds of meat as well as fish and poultry "bring about a slow decay of the vital tissues of the human organism. MEAT THEREFORE DOES NOT GIVE STRENGTH." Even eggs are likely to be harmful since they produce acidity and intoxication. Sugar is a robber of calcium, and to summarize the whole creed, at least fifty per cent of our food should be eaten raw.

The open season for books of this kind seems to be with us again.

CURRENT LITERATURE

American Journal of Diseases of Children

Volume 47, June, 1934

*Vitamin A and colds. E. L. Gardner and F. W. Gardner.—p. 1261.

*So-called breast milk intoxication. T. Tanaka.—p. 1286.

VITAMIN A AND COLDS. Haliver oil, or a balanced diet including an abundance of foods containing vitamin A, plays a definite rôle in decreasing the incidence and severity of colds among school children.

SO-CALLED BREAST MILK INTOXICATION. A case of so-called breast milk intoxication is presented. There are two opinions as to the etiology: (1) that the condition is a new cerebral type of infantile beriberi, and (2) that the condition is a new, independent disease.

American Journal of Nursing

Volume 34, June, 1934

*Management of a colostomy. E. C. Dubois.—p. 553.

Volume 34, July, 1934

*Raw apple diet in the treatment of diarrhea. J. L. Rowley.—p. 682.

*The banana in the management of obesity. G. A. Harrop, and M. Struve.—p. 685.

MANAGEMENT OF A COLOSTOMY. The foods which a colostomy patient should be educated to eat and those which he should learn to avoid are discussed.

RAW APPLE DIET IN THE TREATMENT OF DIARRHEA. A diet consisting solely of scraped ripe apple given every two or three hours has been efficacious in relieving diarrheal symptoms in as short a time as twenty-four hours or less. A transitional diet, fat-free and milk-free, should be given after the raw apple diet.

THE BANANA IN THE MANAGEMENT OF OBESITY. Various cures for obesity and reduction diets are discussed. The banana and skim milk diet, which is considered an acceptable reducing diet, is outlined in detail. Safe weight loss is discussed.

American Journal of Physiology

Volume 108, June, 1934

Chloride, carbohydrate and water metabolism in adrenal insufficiency and other conditions. H. Silvette.—p. 535.

*Effect of digestion on blood flow in certain blood vessels of the dog. Herrick, Essex, Mann and Baldes.—p. 621.

Analysis of factors involved in gastric motor inhibition by fats. J. P. Quigley, H. J. Zetteman and A. C. Ivy.—p. 643.

The effect of diet in the distribution of glycogen in the skeletal muscles of the rat M. Sayhun, R. Simmonds, and H. Working.—p. 708

Volume 108, July, 1934

*Mechanism of gastric motor inhibition from ingested carbohydrates. J. P. Quigley and K. R. Phelps.—p. 133.

EFFECT OF DIGESTION ON THE BLOOD FLOW IN CERTAIN BLOOD VESSELS OF THE DOG. Contrary to popular opinion, the blood is not diverted from the somatic tissues to the visceral organs during digestion. The flow of blood is actually increased during digestion, the duration and onset of the increase varying with the character of the food ingested.

MECHANISM OF GASTRIC MOTOR INHIBITION FROM INGESTED CARBOHYDRATES. The inhibition of hunger contractions by the ingestion of carbohydrates is considered to be the result of a humoral factor produced by the presence of the carbohydrate in the upper intestine. The inhibition persists until the onset of digestive contraction which is delayed if the carbohydrate is concentrated.

American Journal of Public Health

Volume 24, June, 1934

*Arsenic poisoning by pies. C. H. LaWall and J. W. E. Harrison.—p. 581.

ARSENIC POISONING BY PIES. A case of wholesale poisoning through gross negligence is reported.

Hospital Management

Volume 37, June, 1934

Food service problems of a big tuberculosis hospital. E. R. McKenna.—p. 48.

Who controls hospital food after it leaves the kitchen? G. Crafts.—p. 52.

Volume 38, July, 1934

Variations in menus reward dietitian in satisfaction of patients. E. R. McKenna.—p. 44.
Seventy-three per cent cut in food waste follows intensive campaign. V. Baily.—p. 48.
*We're planning to put our kitchen on the top floor. Editorial.—p. 50.

WE'RE PLANNING TO PUT OUR KITCHEN ON THE TOP FLOOR. If you were free to locate your new hospital kitchen on the top floor, would you? This question is seriously confronting the superintendent of an institution which soon expects to launch an important building project. He wants comments from those who have had experience with top floor kitchens. Some commendable features of the top floor kitchen are stated.

Journal of the American Medical Association

Vol. 102, June 9, 1934

*Natural pigments and vitamins. Editorial.—p. 1944.
Pain in gastric and duodenal ulcers. Editorial.—p. 1945.
*The improvement of milk supplies in the United States. Current Comment.—p. 1946.
*Beriberi following drastic voluntary dietary restriction. D. Riesman and H. Davidson.—p. 2000.
*A milk and banana diet for the treatment of obesity. G. A. Harrop.—p. 2003.
Plasma magnesium. Editorial.—p. 2026.
The fuel for strenuous exercise. Editorial.—p. 2027.
Factors influencing the dextrose tolerance test. Current Comment.—p. 2028.

Vol. 102, June 23, 1934

*The fuel of muscular work. Editorial.—p. 2107.
Epinephrin and the utilization of sugar. Current Comment.—p. 2108.

Vol. 102, June 30, 1934

*Onychia due to chronic hypovitaminosis. C. White.—p. 2178.

Vol. 103, July 7, 1934

*A dermatitis due to aniline dye in a food product. H. L. Baer.—p. 10.

NATURAL PIGMENTS AND VITAMINS. There is a growing tendency to associate highly pigmented natural foods with peculiar nutritive potency. This is a sound nutritional principle which has been substantiated by biologic assay tests.

THE IMPROVEMENT OF MILK SUPPLIES IN THE UNITED STATES. Our present average national consumption of milk amounts to approximately 55 gallons per person yearly, or not quite a pint daily. Public opinion is responsible for the cleaner and safer milk supply of today.

BERIBERI FOLLOWING DRASTIC VOLUNTARY DIETARY RESTRICTION. Several sporadic cases of beriberi are presented. They were treated with a diet high in vitamin B. Yeast and wheat germ, liver, kidney, whole grain cereals and tomatoes, raw cabbage, fresh spinach and legumes were found to be very valuable.

A MILK AND BANANA DIET FOR THE TREATMENT OF OBESITY. A diet of bananas and skimmed milk is proposed for the treatment of overweight. It is simple, inexpensive, readily available, palatable, of high satiety value and low in salt content. The six large bananas and 1000 cc. of skimmed milk furnish approximately 950 calories per day and should bring about a weight loss of from 4 to 9 pounds in two weeks. The diet is probably most valuable when used alternately with a more liberal 1000 calorie diet.

THE FUEL OF MUSCULAR WORK. The recent experiments of Gemmill suggest that fat is used as such to supply the energy for muscular contraction in man.

ONYCHIA DUE TO CHRONIC HYPOVITAMINOSIS. Deficiency of vitamins B_2 and D, due to restricted diet, was believed to be the etiologic factor in this disease which is characterized by nail changes. All nails have responded, either by a cure or by marked improvement, to the administration of foods containing vitamins B_2 and D.

A DERMATITIS DUE TO ANILINE DYE IN A FOOD. A case is presented in which the green coloring matter of gelatin acted as a sensitizing agent and produced toxic manifestations.

Journal of Biological Chemistry

Volume 105, June, 1934

*The effect of the proportion of fat and carbohydrate in the diet upon the excretion of metabolic nitrogen in the feces. H. H. Mitchell.—p. 537.

THE EFFECT OF THE PROPORTION OF FAT AND CARBOHYDRATE IN THE DIET UPON THE EXCRETION OF METABOLIC NITROGEN IN THE FECES. The substitution of fat for starch in a diet does not affect the excretion of metabolic nitrogen in the feces, even though the total amount of dry material produced is considerably increased thereby.

Journal of Home Economics

Volume 26, June and July, 1934

*Nutrition work under the Federal Emergency Relief Administration. M. A. Mason.—p. 334.

*Food preservation in Labrador. E. C. Avery.—p. 354.

Consumers standards and the NRA. Editorial.—p. 361.

NUTRITION WORK UNDER THE FEDERAL EMERGENCY RELIEF ADMINISTRATION. By December, 1933, when the Federal Emergency Relief Administration entered actively into a nutritional relief program, nutrition workers had relief work well under way. They have been of greatest assistance since in coöperating with, and working for the Relief Administration.

FOOD PRESERVATION IN LABRADOR. The International Grenfell Association is teaching the people of Newfoundland and Labrador to can their food in the hope that by producing a more adequate and constant food supply, these people will be more independent as well as better nourished than they are at present.

Journal of Nutrition

Volume 7, June, 1934

*Urinary excretion of citric acid. I. Effect of ingestion of large amounts of orange juice and grape juice. C. Schuck.—p. 679.

*Studies in the control of dental caries. M. Koehne and R. W. Bunting.—p. 657.

*The relation of food to alimentary fill in the albino rat. R. C. Miller and M. Kriss.—p. 627.

*The effect of mineral oil administration upon the nutritional economy of fat soluble vitamins. III. Studies with vitamin D of irradiated ergosterol. R. R. Jackson.—p. 617.

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Studies of the raw egg white syndrome in rats. W. D. Salmon and J. G. Goodman.—p. 1.

Storage of vitamin A in cattle. H. R. Guilbert and G. H. Hart.—p. 25.

Vitamin A storage in the livers of turkeys and chickens. H. R. Guilbert and W. R. Henshaw.—p. 45.

Variations in the potency of certain foodstuffs in the cure of dermatitis induced in rats by dietary egg white. H. T. Parsons and J. G. Lease.—p. 57.

The relation of avitaminosis C to blood clotting. A. K. Presnell.—p. 69.

The development of xerophthalmia and the keratinization of epithelial tissue on withdrawal of vitamin A from the diet of the monkey, guinea pig, rabbit and adult albino rat. R. A. Hetler.—p. 75.

Vitamin D in the blood and milk of cows fed irradiated yeast. R. F. Light, L. T. Wilson and C. N. Frey.—p. 105.

URINARY EXCRETION OF CITRIC ACID. Citric acid excretion was increased when large amounts of orange juice and grape juice were added to a basal diet. The increase produced by the orange juice was slightly greater than that produced by the grape juice, but the ratio of the amount of citric acid excreted to the amount ingested was very much higher for the grape juice.

STUDIES IN CONTROL OF DENTAL CARIES. The low incidence of caries among the children in an orphanage may be explained by the low intake of artificially sweetened food, the great regularity of the meals, and the uniformity in quality of the food served, rather than on the basis of the superior nutritional value of their diet.

RELATION OF FOOD TO ALIMENTARY FILL IN THE ALBINO RAT. The results of this experiment indicate that with increase in food there is a proportionally greater increase in the rate of passage of food residues through the alimentary tract.

THE EFFECT OF MINERAL OIL ADMINISTRATION UPON THE NUTRITIONAL ECONOMY OF FAT SOLUBLE VITAMINS. The administration to albino rats of large doses of mineral oil has been found to interfere considerably with the assimilation of the vitamin A factor. The experiments here described do not favor the indiscriminate use of mineral oil as a laxative.

The Modern Hospital

Volume 42, June, 1934

*Treatment by diet—when and how? J. C. Doane.—p. 79.
*Instructing the diabetic patient. C. Scotten.—p. 104.
June dinner menus for the patient in the general hospital. N. Ross.—p. 114.

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Purchasing staples. G. E. Moreland.—p. 100.
I was lucky to get the job. N. Trenkle.—p. 104.
July menus for the general hospital patient. E. Anderson.—p. 110.

TREATMENT BY DIET—WHEN AND HOW? Dietetic treatment of disease is a neglected subject, deserving the earnest attention of all administrators and physicians in most hospitals. Dietaries, both standard and special, require much study and greater standardization.

INSTRUCTING THE DIABETIC PATIENT. Diabetic patients are forced to follow their diets through life. Unless the patient is too ill, instruction should start as soon as the patient is placed on the diet. The dietitian should not try to cram a lot of confusing instructions into the patient on the day of discharge when he is under the nervous tension of going home. The instruction must be so thorough that the procedure becomes automatic.

THE WASHINGTON, D. C. CONVENTION

AMERICAN DIETETIC ASSOCIATION, SEVENTEENTH ANNUAL SESSION

THE American Dietetic Association will begin its convention program, on Sunday, October 14, with a tea at the Dodge Hotel. Mary Lindsley, director of the hotel will be the hostess. She will be assisted by members of the Dietetic Association of the District of Columbia and of Maryland and Virginia.

Make your plans to arrive in Washington in time for the tea. If the weather is good, and it usually is at that time of year, the garden will be open. Delegates arriving on Sunday may register between ten and four that day.

After the general session on Monday, the Welcoming Luncheon will be especially interesting; Ruth Atwater, chairman of arrangements, will preside. Genevieve Forbes Herrick, a special writer for the Chicago *Daily News*, will tell of her interesting experiences as a newspaper woman in official Washington life. A number of Washington women members of the press will be our guests. The annual business meeting will have some special features, so don't miss it.

Each afternoon, at four o'clock, tea will be served in the Exhibit Room in order that those visiting the convention may relax and at the same time meet the representatives of the business firms who exhibit with us.

Seven o'clock has been set as the hour for all dinners. The first of these is the Affiliation Dinner on Monday night, with Laura Comstock presiding. Tuesday night, Mary de Garmo Bryan will preside at the dinner for the heads of departments giving approved training courses. At the same time there will be a dinner for the public health group.

Lillian Storms will preside at the Exhibitors Luncheon, on October 17. That night the annual Banquet, at which we hope to have a delightful surprise for you, will be held.

On Thursday night there will be another special dinner. Our Association is doing worth while things, and it is up to our members to see that the public is informed regarding our work. At this dinner, with Esther Kimmel presiding and with an interesting speaker, we are to learn how this is best done.

A special committee has planned many interesting trips for Friday in and around Washington. The new highway, which follows the Potomac to historic Mt. Vernon, is a delightful drive. Arlington House, the home of the Custis and Lee families, has been furnished within the past few years. A beautiful new bridge spans the Potomac from the Lincoln

Memorial to Arlington, but come and see all of these things for yourself. In addition to these trips of historic interest there will be visits to the Bureau of Home Economics, Walter Reed Hospital, Freedman's Hospital, University of Maryland, and many other points of interest.

Saturday, those attending the convention are invited to visit the Johns Hopkins Hospital and Dr. E. V. McCollum's Nutrition Laboratory in Baltimore.

The Program Committee has tried to plan the program in such a way that each section will have one session when there are no other meetings. This will make it possible for everyone to hear most of the important speakers. Each section will have progress reports given on the interesting projects under way. Following are a few of the general subjects we are planning to have discussed by the best speakers obtainable in these particular fields.

We are all wondering what is to be the effect on our food supply of the agricultural changes that are now in progress throughout the country, and hope to learn something of these under the topic "Our Future Food Supply." We are to hear of the newest things in lighting and air conditioning followed by an open discussion of both subjects. "Our Share in this Country's Relief Program," "Exploded Food Fads," "Community Canning Centers" and many other topics will be presented.

Washington is usually delightful during the month of October and the past few years have seen many changes in the city, and with the new government buildings and park systems you will scarcely know it.

By this time you have received an individual member convention flier which gave you even later details about the program than was possible at the time the September JOURNAL went to press. The real significance of our Washington meeting this year is that our Capitol is both in reality and in our imagination the creative center of many developments vitally affecting all our lives socially, economically and professionally. The program is designed to emphasize for you national and world development as they affect our profession, and to provide as well an opportunity for us to hear and see in person many of the important national figures responsible for the nation's changing viewpoint. For one who has not experienced the undercurrents of swift moving progress which have characterized Washington these past years, it is impossible to convey how great an inspiration even a casual visit can give. How much more keen will be your determination to accomplish creditable professional results after the week of our convention at Washington, when added to the inspiration inherent in the city itself.

Quite in keeping with the spirit of our times and the often seemingly insurmountable problems which have faced all professional associations recently, you will find a program stimulating, imaginative, unusual, amusing and above all challenging to your professional pride.—MARIE MOUNT, *Chairman, Program Committee.*

PROGRAM NOTES

The following additions and changes should be made in the program as it appeared in the July JOURNAL:

Sunday, October 14—Registration will take place from 10:00 a.m. to 4:00 p.m. Mrs. Quindara Oliver Dodge, chairman, will preside at the meetings of the Journal Board and the Placement Bureau Board.

Monday, October 15—Registration will begin at 8:30 a.m.

Tuesday, October 16—Louise Stanley will speak on "The Bureau of Home Economics" at the morning meeting. At the meeting sponsored by the Administration Section, Erwin H. Schell of Massachusetts Institute of Technology will speak on "The Dietitian and Business Administration."

Wednesday, October 17—Mary Schwartz Rose will speak at the meeting sponsored by the Community Education Section. At the Administration Section Round Table, Mary Lindsley will speak on "Administrative Problems." Dr. M. E. Rehfuss of Philadelphia will address the meeting under the auspices of the Diet Therapy Section, his subject being "Exploded Diet Fads." At the same meeting Charlotte Chatfield will present a paper on "Special Studies on Composition of Fruits and Vegetables."

Thursday, October 18—Dr. R. Adams Dutcher, of Pennsylvania State College, will speak at the Diet Therapy Section Round Table, on the subject of "Vitamin Studies." At the Community Education Section Round Table, Dr. F. W. Tanner of the University of Illinois will speak on "Community Canning Centers for Relief." At 7:00 p.m. a "Unique Dinner" will be held, with Esther Kimmel presiding. This dinner is designed for state publicity chairman as well as for the general membership and will prove exceptionally profitable.

CONVENTION NOTES

Registration will be from 10:00–4:00 Sunday and thereafter daily 9:00–5:00 as long as necessary.

Information and *Hospitality* and *Trips* centers will also be competently covered beginning at that time on Sunday.

"Certificate Plan" Certificate. A concession of one and one-third fare on the "Certificate Plan" will apply for members and *dependent members of their families* attending the meeting of American Dietetic Association at the Mayflower Hotel, Washington, D. C., October 14–19, 1934.

The following instructions should be carefully followed:

1. Tickets at the regular one-way tariff fare for the *going* journey must be obtained on one of the going dates of sale for the specific territory (but *not on any other date*). Be sure that when purchasing your going ticket, you request a "Certificate Plan" certificate from ticket agent. Do not make the mistake of asking for a "receipt." (Note: Members attending sessions only on Thursday and Friday, October 18 and 19, respectively, from nearby localities such as Philadelphia and Baltimore, cannot obtain certificates because of the closing sale dates.)
2. Present yourself at the railroad station for ticket and certificate at least thirty minutes before departure of train on which you begin your journey.
3. *Certificates are not kept at all stations.* It is suggested that you inquire at your home station and ascertain whether or not the agent can issue through ticket and certificate to place of meeting. If not, the agent will inform you of the nearest station at which they can be obtained. In such case, you should purchase a local ticket to the station which has certificates in stock and from there buy a through ticket to place of meeting and at the same time ask for and secure a *"Certificate Plan" certificate.*
4. Immediately on your arrival at the meeting, present your certificate to the endorsing officer, Margaret Ritchie, Secretary, as the reduced fare for the return journey will not apply unless the certificate is properly endorsed by her and validated by a Railroad Special Agent as provided for by the certificate.
5. Arrangements have been made for validation of certificates by a Special Agent of the carriers on October 15 to 19, inclusive, provided such certificates, or a combination of such certificates and round-trip tickets, held by members of the organization and dependent members of their families, issued under following conditions, aggregate *not less than 100*:

   Certificates showing the purchase of one-way tickets on authorized dates of sale and from authorized territory from which the one-way adult tariff fare is 75 cents or more. (Please note that members coming from Baltimore and Philadelphia are entitled to certificates.)

   Round-trip excursion tickets of all classes, including round-trip clergy tickets, sold prior to or on dates of sale authorized for the convention from points for which the one-way adult fare to place of meeting is $2.00 or more. This permits excursion tickets to be counted toward the certificate if turned in to the validating agent to record the ticket number. Certificates or tickets issued for children of half fare age to be counted the same as adult certificates or tickets.
6. No refund of fare will be made because of failure to obtain a proper certificate when purchasing going ticket.
7. To *prevent disappointment*, it should be understood that the reduction on the return journey is not guaranteed, but is contingent on an attendance at the meeting of not less than 100 members of the organization and dependent members of their families, holding certificates, or a combination of certificates and round-trip tickets as explained above. *Do your part and get a certificate* so we can be assured of the necessary quota!

8. If the necessary minimum of 100 certificates, or a combination of certificates and round-trip tickets aggregating 100 (as outlined above) is presented at the meeting and your certificate is duly validated by the Special Agent, you will be entitled, up to and including October 23, 1934, to purchase a return ticket via the same route over which you made the going journey, at one-third of the regular one-way tariff fare from the place of meeting to the point at which your certificate was issued. (Note: This is Tuesday following convention so that it will provide you ample time for the trip down the Potomac River to Williamsburg and return.)
9. Tickets so purchased will be good for return passage to reach original starting point within 30 days in addition to date of sale of going ticket, as shown on the certificate. (Thereby assuring you of ample leeway for stopover privileges on points enroute your return trip, such as the World's Fair, Chicago, etc.).
10. In some parts of the Western and South Eastern territory the convention fares are the more advantageous, in others special round-trip fares, or summer excursion fares on sale up to October 15 are on a lower basis. *Members should confer with their ticket agent as to which fare is lower.*

TERRITORIES	GOING DATES OF SALE	FINAL HONORING DATE
	1934	*1934*
Central Passenger & Trunk Line Ass'n., Mr. Fox, Chicago, Illinois	October 11–17 inclusive	October 23
New England Passenger Ass'n., Mr. Pratt, Boston, Mass	October 11–17 inclusive	October 23
South Eastern Passenger Ass'n., Mr. Rhodes, Atlanta, Georgia	October 11–17 inclusive	October 23
Eastern Canada Passenger Ass'n., Mr. C. P. Riddell, Montreal	October 11–17 inclusive	October 23
South Western Passenger Ass'n., Mr. J. E. Hannegan, St. Louis	October 10–16 inclusive	October 23
Western Passenger Ass'n., Mr. H. W. Siddall, Chicago	October 11–17 inclusive*	October 23

* The inclusive going dates of sale for this territory vary for the different states, for example, Northern Idaho, Oregon, Utah and Washington are effective October 1–16 so that members from this part of the country should check this fact sufficiently early to assure accurate information.

Convention Trips

In a brief space it is impossible to give a complete picture of the real joy that awaits members and visitors in the matter of trips. The committee has selected some of the most interesting of the many trips available, and we want to let you know a little more about them.

In addition to the outlined trips there are many others that will take only a short time. The Cathedral of St. Peter and St. Paul, on Mt. St.

Albans, the highest elevation in the city, and situated in the center of the beautifully laid out Cathedral Close of sixty-three acres, is one of the most beautiful examples of Gothic architecture in America. The Bishop's garden, which will be lovely during the early October days, is a delight in itself.

Everyone will want to make at least one trip to the Corcoran Gallery of Art which is within easy walking distance of the Mayflower Hotel.

The following schedule of trips gives the cost of each and the time required:

Trip No. I. This trip is unique, for in no other city are there such beautiful and interesting public buildings. Starting with the White House, everyone wants to see first hand the palatial home of the President. The house is of stately simplicity, beautifully appointed, and the view of its shaded lawns seen from the white pillared porticoes is one long to be remembered. The Pan American Union is a monument to the unity of interest of Pan America. Even a brief study of its exhibits makes us feel much better acquainted with our South American neighbors. The Bureau of Printing and Engraving is perhaps the most "actively" interesting building on the trip. Here you will see the actual printing of internal revenue stamps, postage stamps, and currency. The Library of Congress, which houses the largest collection of books in America, is outstanding as a reference library and serves students from all parts of our own and many foreign countries. When you see the building with its magnificent mosaics and murals you will know why we have made no attempt to describe it. This same trip offers the opportunity to see the Capitol of the United States which houses the legislative branch of our government. The tremendous building is surrounded by fifty-two acres of beautifully landscaped grounds. The trees on the Capitol grounds are of exceptional beauty and many of them are very, very old.

Trip No. II. The immediate environs of Washington offer as much of interest as the city itself. A ten minute automobile ride across the Potomac River will bring you into one of the most historic sections of Virginia. The first stop is at the Tomb of the Unknown Soldier and the Memorial Amphitheatre which are located in Arlington Cemetery. The Custis Lee Mansion, historic home of Robert E. Lee, is situated in the Arlington grounds. The mansion, surrounded by beautifully kept lawns and ancient trees, commands a magnificent view of the Potomac River and the city of Washington. From its front portico one looks across the recently completed Arlington Memorial bridge to the Lincoln Memorial. The mansion is a fine example of Early American architecture and its exquisite furnishings are typical of that period.

Reluctant as everyone will be to leave Arlington, there are other things to see. Driving through Alexandria, one stop will be made at Christ Church where Washington and Lee both worshiped, and then on to Mount Vernon, the climax of the trip. Every American should see Mount Vernon. Its charm and personality must be felt; they cannot be described.

Washington at Night presents a quite different picture. The flood lighting that is used on many of the public buildings is most effective. The night trip is short, takes one and one-half hours and costs 75 cents.

Professional Trips

Arrangements have been made for trips to (1) St. Elizabeth's Hospital, the Federal hospital for the insane; (2) Freedman's Hospital, a modern hospital caring for colored patients only, and with an approved course for dietitians; and (3) Water Reed Hospital.

The Bureau of Home Economics has extended an invitation to members of the Association to visit the Bureau in its new permanent quarters and see something of the different research problems that are now under way.

A trip through Government cafeterias in the Commerce and Post Office Buildings will give an opportunity to see and learn about the operation of the latest cafeteria equipment.

The Saturday trip to Johns Hopkins Hospital and School of Public Health will include a visit to Dr. E. V. McCollum's nutrition laboratory and promises to be most interesting and valuable.

For those staying over Sunday, a trip to historic Williamsburg has been arranged. If 15 people are interested in going to Williamsburg (and if there is an opportunity to ask Mary Lindsley about the restoration project in progress there many more are sure to be interested) a rate of $14.25 for the entire trip has been quoted. The boats leave Washington at six-thirty Saturday night and return at seven-thirty Monday morning, or may be taken Friday night to return Sunday morning. The trip includes a conducted tour of Jamestown Island, Yorktown, Williamsburg, and Old Point Comfort. The rate includes transportation, lodging (two in stateroom), meals, and admission fees to places visited. It's a wonderful opportunity!

The U. S. Naval Academy at Annapolis is only two hours away by auto or bus. The Academy alone is well worth an afternoon's time, but when we add to it seeing Annapolis, the Capital of Maryland, and one of its oldest and most historic towns, all doubt about the desirability of this trip is removed.

The attendants at the registration booth in charge of trips will be glad to help you see everything you want to see. Don't hesitate to ask for information. We hardly expect you to see all of the 668 parks which contribute to Washington's charm and beauty, but we will be genuinely sorry if you leave Washington without at least one glimpse of Potomac or Rock Creek Park.

SCHEDULE OF TRIPS

Monday, October 15, 1934
Tuesday, October 16, 1934

8:00 p.m.

Night trip of Washington

Lincoln Memorial—Haines Point—Washington Monument—Library of Congress—Capitol. Guide Service with each bus.

Time: 1½ hours.

Rate: 75 cents.

Friday, October 19, 1934

8:30 a.m.

(1) Interior of Public Buildings

White House, Bureau of Engraving and Printing, Pan American, Smithsonian, Library of Congress, and United States Capitol. Guide service on each bus.

Time: 4 hours.

Rate: $1.00, includes guide or admission fees where required.

(2) Arlington, Alexandria, and Mt. Vernon. Stops made at Tomb of Unknown Soldier, Memorial Amphitheatre, Custis Lee Mansion, Masonic Lodge, Christ's Church and Mt. Vernon. Guide service on each bus.

Time: 4 hours.

Rate: $1.70—includes guide or admission fee where required.

10:00 a.m.

(1) St. Elizabeth's Hospital—no guide service with bus.

Time: 2 hours.

Rate: 50 cents.

(2) Freedman's Hospital—no guide service with bus.

Time: 2 hours.

Rate: 25 cents.

(3) Bureau of Home Economics.

Time: 2 hours.

Rate: 25 cents.

1:30 p.m.

(1) Interior Public Buildings.

Same as morning trip.

(2) Arlington, Alexandria, and Mt. Vernon.

Same as morning trip.

(3) Walter Reed Hospital and Maryland University—no guide service with bus.

Time: 4 hours.

Rate: $1.00.

8:00 p.m.

Government Cafeterias.
Time: 3 hours.
Rate: 25 cents.

Saturday, October 20, 1934

Trip to Johns Hopkins University Hospital and Dr. McCollum's Laboratory. Maryland Dietetic Association will entertain at luncheon at Johns Hopkins Hospital.

Friday, October 19, 1934 to Sunday, October 21, 1934 or Saturday, October 20, 1934 to Monday, October 22, 1934	Two nights and one day

Norfolk, Newport News, Williamsburg, Jamestown Island, Yorktown, and Old Point Comfort.
Boat leaves Washington Friday or Saturday, at 6:30 p.m.
Returns to Washington Sunday or Monday at 7:30 a.m.
Points of interest admission fees are included in the rate as well as transportation, excellent state rooms (two in a room) and meals.
Rate: If 15 people take the trip together, $13.65.

The Mayflower Hotel will serve as a starting point and return destination for all trips. Announcements concerning trips will be made at all sessions in order that delegates may secure tickets in advance.

Two members each from the Baltimore, Richmond and Philadelphia Associations will serve on the Trips Committee. Other members include Mildred Parker, Mrs. Martha Mumford, Frances Kirkpatrick, Eleanor Enright.—BLANCHE FICKLE, *Chairman.*

MOTOR TRIPS

When you come to Washington you are no doubt planning to spend some time in historic Virginia.

There are many points of interest: Mount Vernon and Pohick Church, the home and church of George Washington, both close to Washington D. C.

At Fredericksburg are found the home of Mary Washington, the law office of James Monroe, "Kenmore" and many other historic points.

At Richmond, the Capitol of the Confederacy, are to be found Lee's home, White House of the Confederacy, the Capitol building designed by Thomas Jefferson and housing the famous life mask statue of Washington by Houdon, St. John's Church, historic for the Colonial Congress at which Patrick Henry made his famous speech, and the Battle Abbey with famous murals by Hoffbauer.

Petersburg was the scene of bloody fighting during the war between the states, and the tunnels and trenches of that time are still extant.

Yorktown, in the Revolutionary area, together with Williamsburg, the Colonial Capital, and Jamestown, the site of the first permanent white settlement in America, are in the National Memorial Park. In this area are found many colonial buildings restored to their original condition, and William and Mary College, one of the oldest institutions of learning in America. Norfolk and Portsmouth on Hampton Roads are important ports.

At Charlottesville is found the University of Virginia, designed by Thomas Jefferson. His home, Monticello, is a fifteen minute drive away. In the Shenandoah Valley, lying between the Blue Ridge and Alleghany Mountains, are many famous caverns, and the Natural Bridge, a natural stone formation 200 feet high which carries a highway.

Vacation places in Virginia include Virginia Beach, Ocean View, Buckroe Beach, White Sulphur Springs, Hot Springs, Mountain Lake.

Information may be had by sending self-addressed stamped envelope for reply, giving type of trip, length of time, etc., to Helen G. Roll, Publicity Chairman, Virginia Dietetic Association, Johnston-Willis Hospital, Richmond, Virginia.

Trip No. I. Take U. S. Highway No. 211 from Washington, proceed through Warrenton to Panorama and Luray. Proceed from Luray to top of mountain at Skyland, arriving at 1:30 in time for lunch (predicated on party leaving Washington at 9 a.m.). View the Valley of Virginia and Shenandoah National Park from Stony Man Peak, returning to Luray Caverns at 4 p.m. Spend two hours at Caverns and have dinner at Mimslyn Hotel. Also spend night at Mimslyn Hotel.

Leave hotel following morning at 9 a.m., continue on U. S. No. 211 to New Market, thence south on U. S. No. 211 to Harrisonburg and Staunton. Cross Afton Mountain to Charlottesville, lunch in Charlottesville and proceed to Monticello, home of Thomas Jefferson.

Leave Charlottesville via State Route No. 5 and proceed to Richmond. Over-night stop in Richmond. Following morning sight-seeing trip through Richmond, to St. John's Church, where Patrick Henry delivered "Liberty or Death" oration; Virginia State Capitol, designed by Thomas Jefferson; White House of the Confederacy; Confederate Memorial Institute; Valentine Museum and other shrines.

Leave Richmond 11 a.m., via Route No. 60 (optional, route via Charles City County, inspection of James River plantations) to Williamsburg for lunch; thence side trip to Jamestown, site of first permanent

English Settlement in America; return from Jamestown via Williamsburg for view of restored area of city; thence to Yorktown, where Revolution was brought to a close—cross ferry to Gloucester and follow Tidewater Trail north to Washington.

Trip No. II. Leave Washington via U. S. Route No. 1, visit Mount Vernon; proceed to historic Fredericksburg, thence south on Route No. 1 to Richmond for lunch and sight-seeing trip of city.

Leave Richmond via Route no. 60, proceed to Williamsburg, Jamestown and Yorktown; thence across York River to Gloucester and north via Tidewater Trail.

Trip No. III. Leave Washington by way of U. S. Highway No. 1, proceed south to Fredericksburg. See James Monroe shrine, "Kenmore" and other historic places before having lunch at either the Stratford or Princess Ann Hotel.

Leave Fredericksburg by way of route No. 3. Proceed east to Stratford, birthplace of Robert E. Lee, and Wakefield, birthplace of George Washington. Continue east on route No. 3 to Warsaw, thence to Tappahannock by way of Downing Bridge—south on Route No. 360 to Richmond and over-night stop and sight-seeing trip of city. Thence north by way of U. S. No. 1 through Fredericksburg to Washington.

Note: A number of other trips are possible. Bus lines, railroads and steamship companies will gladly coöperate in working out itinerary.

This year more space than ever before will be devoted to exhibits. New educational material contributed by members of the Association will be placed in the Association booth.

A collection from affiliated state associations will be shown. Reports of research work being financed in universities by commercial firms will also be on display.

Following are some of the exhibitors who will be represented.

Battle Creek Food Company. The dietitians of The Battle Creek Food Company will again present the ready to eat cereals containing wheat germ: Fig and Bran and Zo. They will also serve the delicious yeast product, Savita as a cracker spread and as a bouillon.

F. A. Davis. The F. A. Davis Company cordially invites you to visit its Booth and inspect the new text—"Food in Health and Disease" by Katherine Mitchell Thoma, which is being used in hospital and college dietetic instruction. On display also are reference books covering dietetics and allied subjects.

R. B. Davis Company. Visit Booth 43 and be served with Cocomalt, a popular food drink, supplying rich calcium, phosphorus, vitamin D content, in a particularly delicious form. New Food Value charts, calcium, phosphorous, Vitamin D and

caloric value are available to those who desire them. Besides Cocomalt there will be on display—Davis Baking Powder, Cut-Rite Waxed Paper and a complete set of the educational material. The booth is in charge of Miss Elsie Stark, Director of Home Economics Department.

J. B. Ford Company. The J. B. Ford Company exhibit in Booth 11 will be in charge of Mr. J. McFarlane. There will be on display Wyandotte Products for dishwashing and general maintenance cleaning; also booklets and folders of interest to dietitians.

General Foods Company. At the exhibit there will be shown the various products of General Foods, including Frosted Foods and the printed material concerning them.

Gerber Products Company. Gerber's Strained Foods cordially invite you to visit us at Booth 15 and give us an opportunity to show you our products, opened for your inspection, and copies of literature we have.

Heinz Company. Heinz Strained Foods for baby feeding, special soft diets, and convalescents will be featured. Other Heinz varieties being exhibited are Tomato Juice, Olive Oil, Rice Flakes and Breakfast Wheat. An outstanding feature of the Heinz cereals is their content of Added Cereal Cellulose which has a gently laxative action through furnishing bulk without irritation. Heinz Tomato Juice will be served.

Hobart Manufacturing Company. Hobart Manufacturing Company will exhibit electric food preparing machines, mixers, food cutters, vegetable peelers, slicing machines and air whips.

Horlick's Malted Milk Corporation. Attractive new recipe circulars issued by the Horlick's Malted Milk Corporation will be featured at their exhibit at Booth 34. These circulars are entitled "Delicious and Nourishing Recipes for the Use of Horlick's," "Delicious Recipes for Frozen Desserts" and "Delicious Cool Summer Drinks." Horlick's are also presenting a valuable illustrated pamphlet on the Care and Feeding of Infants, and an informative booklet entitled "Dietary Uses of a Valuable Food."

Irradiated Evaporated Milk Institute. At the exhibit of the Irradiated Evaporated Milk Institute there will be literature and information concerning the application of Steenbock-Ultra Violet Process to evaporated milk and its value in the nutrition field. Other publications of interest to educational, welfare, and public health groups will also be available.

Journal of Home Economics. First choice in your periodical reading list is, of course, your professional magazine. Next choice should be the professional magazine that most nearly complements your own. See for yourself by getting a sample copy of the Journal of Home Economics at our booth.

Junket Folks. The Junket Folks Welcome You—in Booth 1—they will show how Junket works magic with milk, and how to arouse the interest of the convalescent in food. Junket Tablets, not sweetened or flavored, are useful for non-sugar diets: Junket Powder, already sweetened and flavored, for making dainty delicious desserts; Flavotint—which flavors as it tints. Junket Ice Cream Mix—that easy-to-make, delicious, smooth ice cream.

Kellogg Company. For the tenth time the Kellogg Company in Booth 14 is welcoming dietitians at an annual convention. How many members realize that exhibitors record the percentage of attendance registering at the booths. We hope to meet many old friends and to make many new ones at the Washington meeting.

Samuel Kirk. Don't fail to visit the Jullicum exhibit. Jullicum will interest you for its convenience, economy and the variety of natural flavors. Jullicum Junket is firm, tasty, convenient to handle and keeps well. Jullicum is the new name for Shinn-Kirk Liquid Rennet, sold 75 years for making Junket.

Knox Gelatine Company. Material on the use of plain gelatine in the diet is available at the Knox Gelatine booth, where tasting samples of appropriate dishes may be had. With the growing importance of plain gelatine for various dietetic purposes this booth is bound to be of great interest to members of the Association.

Kraft Cheese Company. The Kraft-Phenix Cheese Corporation display will include all varieties and types of cheese, and each mayonnaise and salad dressing product which the company manufactures.

Lippincott Company. The outstanding book on "Nutrition," Cooper, Barber and Mitchell, will be shown with many other new books that are of interest to dietitians at the Lippincott Booth. Make Lippincott's Booth your headquarters. You will be greeted by experienced nursing educators. You will not be importuned to buy.

Loose Wiles Biscuit Co. Loose Wiles Biscuit Company will have in its booth a display of Sunshine products—crackers, cookies and biscuits.

Macmillan Company. You are cordially invited to visit the Macmillan Booth and look over our publications which include the works of Sherman, Rose, Bogert, Barber and others of outstanding merit. Ask our representative at the booth to tell you about the forthcoming new edition of McCollum's Newer Knowledge of Nutrition which will appear later in the year.

Mellin's Food Company. Mellin's Food is a valuable aid in the management of the diet in any illness of children or adults where nourishment is an important part of the treatment, for the nutritive elements of which it is composed are readily digestible and capable of rapid absorption. In acute stomach upsets, in chronic intestinal disorders, in irritable conditions that involve the entire digestive tract and in febrile diseases, Mellin's Food may be used with much satisfaction.

Onondaga Pottery Company. In space 35 the Onondago Pottery Company will exhibit Syracuse China. The feature will be the new Econo-rim line in both Adobe Ware and White Body. Do not fail to see the Econo-rim Ware and let the Onondaga Pottery Company's representative explain its many advantages.

E. L. Patch Company. E. L. Patch Company will have in Booth 10 Patch's Kondremul, and Cod Liver Oil. The representative will welcome the opportunity of talking with you about the products.

A. F. Pattee. A. F. Pattee, Publishers, will exhibit the 19th edition of Pattee's Dietetics. This book gives clearly just the information the dietitian and nurse constantly needs. The subject matter has been revised to conform with the most modern practice and administration in order to give the whole work greater clarity and coherence. The Diet Therapy section is under the personal supervision of most eminent physicians.

Ralston Purina Company. Ralston Wheat Cereal, Baby Ralston and Ry-Krisp, the Whole Rye Wafer, will be exhibited by the Ralston Purina Company. Ralston Wheat Cereal provides all the elements of whole wheat plus the appetite-stimulating properties of the extra Vitamin B, added in the form of wheat germ. Baby Ralston now furnishes a rich source of Vitamin B, iron and calcium for the small infant.

Ry-Krisp remains the country's most popular rye cracker, and is used in general, as well as in special diets.

Savory, Inc. At booth 5 you will find on exhibit Savory Radiant Gas Toasters and Broilers.

Sexton and Company. Visitors to Sexton's booth will find themselves repaid with an enlightening exhibit showing what the company has done to help the hospital kitchen reduce food costs. Sexton's Alp Rose canned foods for restricted diets annually win greater acceptance in the hospital field. The analysis of these products have for the past several years been personally supervised by Miss Anna E. Boller and have the acceptance of the American Medical Association.

E. R. Squibb and Sons. A cordial welcome is extended to dietitians to visit the Squibb exhibit. A new and entirely different type of anti-anemia liver preparation will be featured. Opportunity will also be afforded visitors to become acquainted with the most recent (upward) changes in Squibb Vitamin Products. The dominating note in formulating plans for the Squibb Exhibit is to make it both informational and interesting to workers in dietetics. Competent attendants will be present at all times at the Squibb Booth 19.

Smith and Wesson. The ADCO Glass and Dish Washer manufactured by Smith & Wesson, Springfield, Massachusetts, is the modern machine for washing all dishes, glasses, and silverware in Hospital Diet Kitchens. It takes only 30 inches of space; sterilizes by steam; uses only fresh, clean water. There is no motor—it is absolutely sanitary.

Standard Brands. A new product recently introduced, Royal Gelatin Aspic, will be the feature of the Standard Brands exhibit this year. Miss Doris H. Tisdale, Home Economics Director, will be on hand to tell all about this remarkable new flavor. In addition there will be displays of all Standard Brands well-known products—Royal Baking Powder, Fleischmann's Baking Powder, Royal Gelatin Desserts, Royal Arrowroot Puddings, Chase & Sanborn's Coffee, Tender Leaf Tea, and Fleischmann's Yeast.

Stokely Brothers & Co. A New Member—Stokely Brothers & Company will introduce Strained Foods for Baby at the convention. Every step in the preparation of these better foods is Laboratory controlled from the moment the crisp, fresh vegetables and fruits go into the glass lined kettles until they are sealed in special golden lined cans.

Swartzbaugh Manufacturing Company. The Ideal is manufactured only by the Swartzbaugh Mfg. Co. It is sold only by them through representatives located in principal cities. Our representative will show you the many improvements in the construction of the new models on display.

Tricolator Company. Tricolator—The drip coffee making device which takes the place of the bag in the coffee urn—using a triple lamenated filter sheet locked in place by a special patented feature. A coffee making device easy to handle, giving perfect filtration—producing a brew rich in flavor—sparkingly clear—with a delightful aroma and entirely free from the bitter one so often finds in coffee.

United Fruit Company. About bananas at the American Dietetic Association Convention—You will find some very interesting and new information about Bananas at the United Fruit Co. booth, Number 16. Ina S. Lindman, director of Home Economics, will be in charge.

Wander Company. Whenever you feel tired or "on edge," visit the Wander Company's booth and have a refreshing drink of Ovaltine, the well known Swiss Food Drink. In hospitals, Ovaltine is used routinely as a nourishment for nursing mothers and in malnutrition and convalescence. At home, Ovaltine makes a delicious mealtime beverage, particularly in nervousness. Visit Mr. Jenkins at the Ovaltine booth frequently, and enjoy this refreshment.

Wilkins Coffee Company. The John H. Wilkins Company, Wholesale Coffee Importers, Roasters and Packers, of Washington, D. C., will offer in their Exhibit (Space 28) various grades and types of coffee as are generally used by leading dietitians. Delicious coffee will be served and an experienced gentleman will be on hand to answer any questions that you may have on the subject of coffee or tea. You are cordially invited to attend this Exhibit.

ASSOCIATION PROGRESS

PRESIDENT'S MESSAGE

This issue of the JOURNAL contains a number of tangible evidences of progress towards our ultimate goal of universal participation in Association activities by our membership at large. How many can you detect for yourself? The state chairmen, committee chairmen and national chairmen will proudly tell you at the Annual Meeting in Washington, District of Columbia, of the results achieved by their committees, despite apparently impossible handicaps. Your President desires to call to your special attention a few matters enumerated below.

Membership Campaign. The report of progress as it concerns this important activity of securing new members is again brought as a challenge to each and every one of us by the report of the National Chairman on the inside back cover of this issue. In order that the comparison of numbers of new members secured by each state may have significance, you will observe that the total present number of American Dietetic Association members is listed opposite the name of the state. Naturally, a state committee securing five new members in a state having only fifteen national members, might have had a more difficult task than another state committee securing twenty new members in a state having a hundred national members when the Campaign started. A comparison of last year's membership with this year's as of the same date shows New Jersey, Georgia, Massachusetts, Pennsylvania, Iowa, Kentucky, and Illinois to have had a gratifyingly proportionate increase, while Michigan, Indiana, Connecticut and Colorado have had a slight falling off in national membership. Do you know all the factors influencing this situation? Our National Campaign Chairman will have an interpretative and comparative report for you at the Annual Meeting of real significance along these lines.

Placement Bureau. The development of divisional geographic placement committees to support actively and intelligently the National Placement Bureau has uncovered several wrong concepts held by the general membership. *First* of all, it is not prohibitively expensive to secure an active registration in the Bureau—the charge is three dollars. *Second*, it is a privilege granted only to members of the Association. *Third*, placement by your Association Bureau carries enviable professional prestige because of infinite pains taken to recommend the best qualified names on the active files for each opening as it develops. *Fourth*, the Association receives frequent requests for experienced dietitians with either specialized backgrounds or marked administrative ability. It would pay you to put your name on the active files if only to "tempt fate" a bit and keep adventure lurking just around the corner in the shape of an unexpected job. *Fifth*, the interest and enthusiasm of the geographic divisional chairmen augurs well for the quality of pioneering work which must be carried on in many of our states in order to secure wise interpretation of the Association's objective for securing more personal placements.

Exhibits Committee. All the exhibit space, as originally planned, was contracted for by the middle of July, due to the excellent support of the members of the Exhibits Committee. The additional spaces set up cannot accommodate all those firms desiring to take space. Much as we regret this fact, we are delighted to be assured of equalling the New York exhibit in size and quality. Better still, it will be a representative exhibit which will include food products, scientific publications, pottery, china, utensils and cleansing materials, as well as several of our finest institutional equipment firms.

Business Meeting. Yes, I can see your eyebrows lift! What could possibly interest us at this meeting, you may say, it is always so weighty and tedious. Well, come and see for yourselves. We are planning something new this year. This meeting alone should prove to be worth the entire expense of coming to the Convention. Fortunately, we are not dependent upon the Business Meeting to bring you, for the Local Arrangement Committees and the Program Committee give you mute evidence in these pages of the

many treats and the real inspiration which awaits you. On to Washington! Fifty per cent to 100 per cent state attendance our objective!

Lucinda Oliver Judge

AFFILIATION

It has been most gratifying this past year to note the growing interest on the part of the Executive Committees of affiliated states and provinces in the question of strengthening the bond of affiliation. It has been felt by many that this is one excellent way to promote professional spirit and strengthen the work of dietitians in state, province, and national associations. This conviction led to the writing of a "standard" constitution as has already been reported in the May JOURNAL. The letter of recommendation which accompanied this constitution urged each president to bring the matter before her executive board, revisions committee, and to the membership for vote for adoption.

The majority of states went actively to work and have adopted the constitution or will have done so before the time of the Washington meeting. Others are considering the matter. One definitely plans to adopt it next year. Four states and one province have not been heard from to date.

One fine, active, growing state has become affiliated this year—Missouri. The submitted constitution met its needs and it was adopted in its entirety.

Eight states are in the throes of organization and affiliation. October may find them ready to assume the responsibilities of organized, affiiiated associations.

It is not simply numbers which exert influence—quality of work counts as much if not more. Dean Mount has arranged an Affiliation Dinner at the time of the annual meeting to give all an opportunity of discussing state and national problems. Each state and province is sending one voting delegate and one or two other members. If you, as a state member, feel that a certain question should be discussed, please write it to your president or to the affiliation chairmen. In this way important matters will be settled to the satisfaction of all.—LAURA COMSTOCK, *Affiliation Chairman.*

DIVISION PLACEMENT COMMITTEES

The following state chairmen have been appointed by the geographic division chairmen. The latter, as you know, are responsible for the placement promotional work within their respective divisions by virtue of previous appointment to the Placement Bureau Board, or by appointment as chairman of one of the four "standing placement bureau board committees."

Geographic Division	*Division and State Chairmen*
New England, Ia	Octavia Hall Smillie
Maine	Mrs. Ruth Palmer Harribine
New Hampshire	To be appointed
Vermont	To be appointed
Massachusetts	Margaret McGovern
Rhode Island	Eleanor Wells
Connecticut	Dorothy Milavetz
Middle Atlantic, Ib	Helen Gilson
New York	Virginia Howard Ray
New Jersey	Josephine Sutfin
Pennsylvania	Helen Gilson
Maryland	Mary Diefenderfer
Delaware	Mary E. Reed
District of Columbia	Grace Bulman
South Atlantic and East South Central, II	Fairfax Proudfit
Virginia	Amalia Lautz
West Virginia	Mildred A. Kent
North Carolina	Mrs. Elsie Wilson Martin
South Carolina	Sara Hughes
Georgia	Mrs. Peggy Newsom
Kentucky	Mrs. Georgia Hafer
Tennessee	Fairfax Proudfit
Mississippi	Juliette S. Hamilton
Alabama	Mrs. Helen Greene Bulmer
Florida	Anna Tracy
East North Central, III	Katherine Mitchell
Ohio	Marie L. Hines
Michigan	To be appointed
Indiana	Lute Troutt

Illinois	Katherine Mitchell
Wisconsin	Ada B. Lothe
West South Central, IVb	Selma Streit
Arkansas	To be appointed
Louisiana	To be appointed
Oklahoma	To be appointed
Texas	Selma Streit
Southern Rocky Mountain, IVb	Hannah Hotvedt
New Mexico	To be appointed
Arizona	To be appointed
Utah	To be appointed
Nevada	To be appointed
Colorado	Cora Kelley Kusner
South Pacific, IVb	Helen Anderson
Northern California	To be appointed
Southern California	To be appointed
Canada, VIc	Kathleen Burns
British Columbia	To be appointed
Ontario	To be appointed

Three divisional chairmen IVa, Va, VIa have yet to be appointed and several of the state chairmen have not yet been named by their division chairmen. However, in those divisions which have begun to function, a gratifying and sound organization procedure is being developed.

THE SINGLE OR THE DOUBLE SLATE FOR THE ASSOCIATION?

We are again looking forward to the annual meeting and the election of officers. Before any radical change is made in our present system of electing officers, due consideration should be given to the pros and cons of each system so that at the coming meeting the membership may have an opportunity to discuss the question and voice their opinions. The two sides of the question have been outlined by prominent members of the Association as follows:

The Single Slate. Many believe that the double slate possesses certain advantages over the single slate, for the following reasons: (1) it offers a choice on the part of the membership; (2) there is less likelihood of political influence.

Perhaps these reasons were once valid. It will be remembered that originally the Nominating Committee was appointed by the presiding officer or the Executive Committee. Thus administrative officers might conceivably promote their own friends or followers. Since the membership has consisted of women thoroughly schooled in the principles of democracy, the present system was effected in order to prevent any possibility of such autocratic action.

There have been repeated changes in our constitution. Since the adoption of the double slate, members of the Nominating Committee have been elected by the membership. With this check upon any possibility of political influence, it is questionable whether the double slate is necessary and whether more is accomplished by it than by the use of a single slate representative of the wishes of the whole membership.

In the writer's opinion, the double slate is objectionable for the following reason: the honor of being asked to be a candidate for office is a doubtful one, since the Nominating Committee must resort to one of two practices. Either they will choose two strong candidates, both of whom would make excellent officers, or they will select a strong candidate and pit her against a weak candidate. If the former policy is pursued, it would seem to be wasteful of potential leadership, for often the defeated candidate will not care to run again, even though her election may have been lost by a small margin. If the second policy is followed, the weak candidate is placed in a position manifestly unfair to her. The unsuccessful candidate may not only be embarrassed but may even suffer loss of prestige in her own organization and community. Almost any loyal member of the organization would, of course, be willing to make a worth-while sacrifice for the organization; but is this particular one necessary?

While no one will question the right of the membership at large to be the final judge, it is common knowledge that when a choice is offered, it frequently happens that the candidate known to the largest number, regardless of qualifications and record of work, is elected. For example, on the writer's desk is a ballot for another organization. It

presents two slates. Of the eight nominees the writer knows only two, yet four are to be selected. Naturally the writer will vote for the two known candidates, although the others may be better qualified.

The double slate may serve small organizations, but when the membership reaches several thousand, it is improbable that any one person will know or be able properly to evaluate all candidates. Would we not fare better if the responsibility for careful investigation and selection were placed squarely upon the shoulders of the Nominating Committee, and only in extreme cases question their choice?

It would seem to the writer that nomination to a national office should be a member's reward for outstanding work in her professional group and should bespeak the highest honor that can be paid to such members. At the present time, when a member is asked to allow her name to be used as a candidate, she must wonder whether an honor is being conferred or whether she is chosen simply because she will offer little or no opposition to the real candidate.

Since the Nominating Committee is now elected by the membership, it would seem that there is no longer need for a double slate. The constitution does permit a single slate, but since a precedent for the use of the double slate has been set for a number of years, it is possible that any change in procedure should not be made until the will of the general membership is known.—A CHARTER MEMBER.

The Double Slate. The American Dietetic Association, like other national organizations, is a body of persons united in the interest of a common objective. The object of this Association is to promote those things that will be of benefit to dietitians, and so to enhance the profession as a whole. The officers are diplomatic agents chosen by the members to act for them in the execution of its business affairs, and in all possible ways to further the welfare of the Association.

In a society with as large a membership as ours, the several types of dietetics are well represented—foods, nutrition, health maintenance, diet therapy—as are also the various phases of each type—medical, education, research, administration, *et al.* Obviously, not all of these may have representation on the Executive Board every year, but an opportunity should be given with reasonable frequency. Differences in personalities and characteristics of the candidates mean different methods of procedure by the officers, and a member should be permitted to voice her judgment about them when casting her ballot. Interests and activities change from year to year; it is not possible to predict the preferences of the majority in any given year and make a slate to meet it. But a double slate does this twice as well as a single slate.

The double slate calls for more concentrated thought on the ballot which may well indicate more intelligent voting.

It is assumed that the ballot covers as wide a range of the field as is practicable and that the candidates are of comparable ability. Irrespective of this opinions may differ, and with reason, as to the fitness of a candidate for a given office. If there be no choice in the matter the members may justly feel that their rights are being ignored.

With the presentation of a single slate many members may think they have no voice in the matter, anyway; so why go to the business meeting? This may be a mistaken impression, of course, but it is one that is too widely prevalent to be disregarded. It is of the greatest importance that every member feel that the business of the Association is her concern. The more conversant she is with its affairs, the more eager will she be to have a part in them and the more willing to work for them.

After all, the value of the American Dietetic Association is based entirely upon what is accomplished by its members working together for each other and for the profession. Much of its potency will be lost if the idea prevails that the policies are being formulated and the proceedings manipulated by a minority who are not the agents of the majority.

It is well to avoid the appearance of evil.—LULU G. GRAVES.

Editor's note. Members should feel free to express their viewpoints on either side of this question in coming issues of the JOURNAL, or to write to the President indicating which type of slate they prefer.

CODE OF ETHICS FOR HOSPITAL STUDENT DIETITIANS

The student dietitian in a hospital has a difficult position to fill. From the first day of her training she must assume all the dignity that belongs to a professional person. To the dietary staff she is a student, but to the patients and the personnel of the hospital she is a dietitian. For the purpose of simplifying the student's position in the hospital, the following code has been adopted.

1. We shall so conduct ourselves that we shall advance our profession and the hospital which is training us.
2. We shall recognize the obligations which we have incurred in accepting hospital appointments and honestly endeavor to fulfill those obligations.
3. We shall do any task asked of us, cheerfully, and to the best of our ability.
4. We shall pass on to others the benefits of our experience by helping our colleges to strengthen their courses in our field.
5. We shall not discuss the department or the hospital with those not belonging to the hospital. Criticisms of the nutrition department or of any other department will be made only to the staff members of our department.
6. We shall avoid unneccessary discussions of our work while off duty.
7. We shall not discuss our patients with anyone except the professional staffs of the hospital.
8. We shall not make any comment that may be detrimental to the department, the hospital or any employee.
9. Our appearance will be that of neat, attractive and unassuming individuals:
   a. We shall wear uniforms that are of the type adopted by the hospital. We shall see that they are well-fitting, in good condition and always neat
   b. Our footwear will be appropriate to the service
   c. Our hair and fingernails will be well-cared for
   d. We shall be judicious in the use of make-up

To add to the comfort of the patient and to comply with accepted hospital etiquette:

1. We shall endeavor to develop well-modulated voices and quiet habits of work. We shall instil similar ideals of quiet in the employees we supervise.
2. We shall be reserved and business-like in all our contacts with the professional staff and the employees.
3. We shall not use the given name when addressing any professional member of the organization.
4. We shall hold no social conversations while on duty.
5. We shall rise when our superiors approach or address us.
6. We shall give precedence to our superiors in elevators, doorways, etc. We shall not use our white uniforms as means of gaining rank which does not belong to us.
7. We shall follow all rules of the hospital or the department in:
   a. uniforms
   b. habits of living
   c. hospital routine
   d. interdepartmental relationship

In our relationship with the hospital we shall realize that everything we obtain from the hospital during our training belongs to the hospital.

1. We shall realize that all forms and records are the property of the hospital and are to be used as guides and not as our personal belongings.
2. We shall not discuss nor use the results of any studies or reports without the approval of the proper authorities.

3. We shall promote economy in the use of hospital time and property by conscientous consideration on our part and by supervision of the employees for whom we are responsible.

As student dietitians:

1. We shall realize our responsibility to give the best possible service to our patients and to the personnel of the hospital.
2. We shall maintain just relations with our superiors, our patients and our employees.
3. We shall merge ourselves in the purpose of our profession and shall not use our position for self-aggrandizement.
4. We shall maintain an open-minded attitude concerning the organization. We shall not criticize other departments until we have studied all phases of the situation and then we shall discuss it only with our department superiors.
5. We shall always follow the best business methods in all our contacts.
6. We shall realize our responsibility for the health, happiness and general welfare of the employees of our department:
   a. We shall direct their work so that the best service and standards may result with a minimum of waste and friction
   b. We shall train our employees so that they will understand what they are doing and will want to give the best that is in them to the job. We shall show them their responsibility and the results of their work
   c. We shall consider the happiness of our employees by censuring in private and praising before our superiors. We shall consult with our superiors before censuring
   d. We shall discuss with our superiors the personal affairs of our employees only in a professional manner
   e. We shall be open-minded and shall accept any adverse criticism or constructive suggestions as means of improving ourselves or our work

As student dietitians we are being trained for professional life. We shall strive to possess the honesty, accuracy and open-mindedness of the scientist, the progressiveness and initiative of the teacher, the efficiency and enthusiasm of the administrator, the zest for life of the leader, the appreciation and sympathy of the social worker, and the poise and charm of a gentlewoman. We shall give freely of our knowledge, energy and time; and gain, in return, the satisfaction of a worthwhile work well done.

CODE OF ETHICS FOR ADMINISTRATIVE STUDENT DIETITIANS

The purpose of this code is to help students make their training as interesting and productive as possible. Rules of ethics are primarily rules of behavior in society and are established on what may be assumed to be of the greatest benefit to the greatest number. In recognition of present and future responsibilities in the furtherance of public welfare, the following principles are laid down:

Section I. To her superiors

1. A student dietitian should show respect for her superiors and directors and refrain from destructively criticising them to employees, fellow students or anyone outside of the organization.

2. It is the duty of every student dietitian to assume any responsibility given to her and to carry out the wishes of her superiors in letter and in spirit.

3. She should accept graciously and impersonally any suggestion or criticism, and should profit by it.

Section II. To employees

1. A student dietitian should conduct herself in such a manner as to gain the respect of the employees with whom she comes in contact.

2. She should use tact and diplomacy in all her dealings with employees.

3. Students should keep in mind that many employees have had years of experience in their work and much may be learned from them.

4. She should treat all employees with the same degree of fairness.

5. A student should avoid conversation with employees which involves personal problems or a discussion of employer or other employees.

Section III. To the organization

1. A student should strive to maintain the standards set up by the organization in which she is working.

2. A student should be loyal to the organization by keeping its affairs private.

Section IV. To fellow students

1. Students should show a spirit of mutual helpfulness towards one another in all kinds of endeavor.

2. Sincerity, loyalty and a true spirit of friendliness should characterize all dealings with fellow students.

Section V. To her profession

1. A student dietitian should uphold the standards of her profession to the best of her ability.

2. She should have a personal interest in the local dietetic association and its activities.

3. She should interpret her experiences as a student dietitian in order that they will be of benefit to her in future responsibilities.

4. She should make an effort to keep informed concerning new developments in her field.

Section VI. To the public

1. A student dietitian should show a deep concern for all that pertains to the welfare of the community and should contribute as much as possible in her field.

2. She should keep informed concerning laws relating to labor, food and sanitation.

Section VII. To herself

1. A student dietitian should maintain her self respect and her reputation.

2. She should strive to attain the characteristics of an ideal dietitian.

3. She owes it to herself as well as to her profession to keep physically fit and mentally alert.

4. A student dietitian should keep all appointments and be prompt at all times.

A FORWARD STEP

An imposing list of names appears on the committee which is in charge of the American Dietetic Association exhibit arranged by the Illinois and Chicago Associations, at the Century of Progress in Chicago. The local members of this committee are Anna E. Boller, Elizabeth Tuft, Sarah Elkin, Kathryn McHenry, Ella Eck, Frances Floore, and Millie E. Kalsem. Mary I. Barber represents the national association's executive committee as an advisor to the local committee. The Chicago groups, with real generosity and cosmopolitan spirit, have paid tribute to the profession as a whole and not to the work of a solitary state or local group of dietitians. The name, American Dietetic Association, is placed at the top of the exhibit, but the actual work of preparing this decidedly worthwhile display has been done by the Illinois and Chicago associations. The dietetic exhibit is sheltered under the hospitable wing of the American Hospital Association, three of whose ten sections have been turned over to the dietitians. The first of these sections portrays a charming model of a modern hospital kitchen. In contrast to this, a reproduction is shown of the original kitchen of the Bullfinch Building of the Massachusetts General Hospital. The second section contains the wax food models which illustrate the normal adult diet for one day. In this section spotlights feature those foods which are the best sources of the various food constituents. The third panel shows a modern tray set up according to the best hospital standards, with a selective menu, and in contrast a day's menu as served in the Pennsylvania

General Hospital in 1789, furnished through the kindness of Helen Gilson. Antique china is used and the food models were made according to the early menu.

Credit for this whole plan is due to the members of the committee who developed the idea and presented it to the Executive Committee of the national association for approval.

THE STATUS OF THE DIETITIAN IN CATHOLIC HOSPITALS

A letter from Dorothy M. Proud contains the following description of the June 20, 1934, meeting of the Catholic Hospital Association:

> There was an audience of exactly 100, 95 of whom were sisters, one a priest, and the other four of us lay dietitians. Sister M. Adolphus of Salina, Kansas, presided. A paper on the Administrative dietitian by Sister M. Jovita, O.S.F., of Milwaukee was first presented. This was an excellent paper in which the author stressed the importance of the chief dietitian having complete charge of her department, including control of purchasing and stores. She advocated central food service and a selective menu, including nourishments. The sister demonstrated a food waste lowered one-third to one-half, achieved by the use of a selective menu for therapeutic patients as well as those patients on house diets. Sister Jovita emphasized the necessity for the thoughtful training and handling of employees, and the desirability of having an attractive tea room for the patients' visitors, as she herself has.
>
> In closing, she listed the teaching duties which may fall to the lot of the administrative dietitian, and the personal qualifications desirable in an administrator. The organization chart of Sister Jovita's department was passed around for examination of all those interested.
>
> Following this paper, Sister St. Ann, Lackawanna, N. Y., gave the results of her "Survey of the Dietary Departments of Catholic Hospitals." She based her conclusions upon questionnaires returned to her by 34 of the 65 hospitals to which she sent them. She found 20 hospitals had one dietitian each; one had four dietitians; two had five dietitians. Sixteen dietitians were sisters; seventeen, lay dietitians. Ten of the above sisters were graduates of a four-year course; two had only one year of college. Eight were American Dietetic Association members; two had applied for membership. Of the seventeen lay dietitians, nine were American Dietetic Association members and two more had applied for membership.
>
> There followed figures showing the percentage of sister dietitians responsible for food purchase, housekeeping, infant formulae, etc., but I omitted these because I felt they would be of less interest to you than the information given about training and American Dietetic Association membership. The discussion from the floor was animated and intelligent. The significant things brought out were that, so far, the only accredited American Dietetic Association training course for Catholic sisters was St. Mary's in Rochester, Minn. It was pointed out that only two of all these hospitals had asked for American Dietetic Association approval because they realized they were not equipped to give accredited student dietitian training. Mr. S. A. Postal, Food Inspector from Cincinnati, gave a paper on the Tugwell Bill versus the old Foods and Drugs Act of 1906. This paper was also interesting and well presented.
>
> Following these papers, the sister presiding asked Sister Joan d'Arc of St. Catherine's College to discuss the academic education of the student dietitian as prescribed by the American Dietetic Association, and Mrs. Alice Post Hoover to discuss the American Dietetic Association approved courses for the training of dietitian interns. Both were well given. Mrs. Hoover used the course at Ann Arbor to illustrate the various types of training afforded the girl in a large, well organized department. The sisters manifested great interest and asked Mrs. Hoover many questions about the Ameri-

can Dietetic Association and what it could do for them.

I was impressed by the dignity, capability and earnestness of these sisters. I have never heard impromptu discussion from the floor so logical, informed and well delivered.

NUTRITION AND THE CASE WORKER

Ruth Kahn of the Washington University Clinics, St. Louis, described to the Missouri Dietetic Association recently the results of a study made by the Health Department of St. Louis for the purpose of obtaining first hand information as to what a large number of families consider essential foods, and discovering as nearly as possible the food pattern of the St. Louis population as evidenced by a typical day's menu and an estimate of the groceries purchased on a weekly basis. It was discovered that in the best district of the city only 28 per cent of the families studied were receiving adequate diets, while in the overcrowded district the percentage of adequate diets was 1.4. These findings seemed to indicate the need of a good nutritional education program to be carried on by the City Health Department, preferably through the public school system. Miss Kahn stated that the essentials of a well balanced diet should be as familiar to the social worker as they are to the dietitian. She said that she believed the ideal arrangement would be for the relief agency to provide at least one nutritionist for each district office, to act in the capacity of a consultant for the visitors, and, when necessary, to go directly into the home and plan, with the case worker, for treatment. In many cases, the nutritionist would need to show the client how to cook certain foods. A course in simple cookery, included in the training of the social worker, would be helpful for a number of situations. Miss Kahn suggested that not only would it be helpful for case workers to have some training in nutrition, but that dietitians should have a course in elementary case work, in order that they might better understand the problems of their ward patients, and that of out-patients on limited incomes.

THE DEVELOPMENT OF STANDARDS FOR APPROVED COURSES

At the meeting of the Missouri Dietetic Association, Edith Tilton of Barnes Hospital, St. Louis, pointed out a number of contrasts between the approved courses of a few years ago and the ones of today. Some of the early courses might better have been termed apprenticeships, since the student merely performed routine tasks, and was "used" rather than trained. A bachelor's degree in home economics was considered sufficient prerequisite, and the ability to write a diabetic diet was the criterion of training as a dietitian. Today's training, however, attempts to provide specialized knowledge, develop technical skill, and instil respect for ethical behavior. With these aims in mind, certain requirements for admission to approved courses have been set, and the courses themselves have been examined by representatives of the American Dietetic Association, in order that an approved list might be built up. The increasing use of affiliation with organizations having allied interests broadens the value of the courses.

Although each course retains its own individuality, similar lines of work are pursued, including administrative practice, diet therapy, teaching of student nurses, food clinic and out-patient work, infant and child feeding.

Miss Tilton summarized the most important advances in the training of student dietitians as outlining the type of work considered essential for the dietitian in training; approval of hospital courses by means of questionnaire and inspection; establishment of definite requirements as to college work; and decreasing the number of students trained each year.

KNOWING OUR NOTABLES

The resignation of Kathleen Lewis as assistant editor of the JOURNAL has been regretfully accepted. Miss Lewis has carried on the difficult task of assembling digested data from many publications for the past six years, beginning with the December, 1928, issue of the JOURNAL, and the whole

Association owes her a debt of gratitude for her devoted and long-continued attention to this arduous work. In addition to her work for the JOURNAL Miss Lewis has been for some time administrative dietitian at Johns Hopkins Hospital, Baltimore.

Martha Koehne's fame in the nutrition field and as an authority on dental caries continues to grow. The following reprints of her work have just been received: "Food Selection as a Factor in the Prevention of Dental Caries," from *New Jersey State Dental Journal*, April, 1934; "Biochemical and Nutritional Studies in the Field of Dentistry" (with R. W. Bunting), from *Annual Review of Biochemistry*, Vol. III, 1934; "Studies in the Control of Dental Caries. II" (with R. W. Bunting), from *Journal of Nutrition*, June, 1934; "Food Requirement of Girls from Six to Thirteen Years of Age" (with Elise Morrell), from *American Journal of Diseases of Children*, March, 1934. Papers by Dr. Koehne also appeared in the May and July issues of the *American Journal of Diseases of Children*.

The New York State Dietetic Association is to be congratulated on the attractive arrangement of its mimeographed Fifth Annual Convention folder. Appropriate and forceful sketches by an unknown artist illustrate the folder. Ursula S. Senn, publicity chairman, was responsible for this interesting arrangement.

Commendation is due Charlotte Raymond and the nutritionists of the Massachusetts Department of Public Health for their interesting booklet "Food Customs from Abroad" which is reviewed in the Book Review Section of this issue.

Again responding to a call for help, Lute Troutt secured the services of Margaret Mangel and Catherine Thurston in preparing the Current Literature Section for this month's JOURNAL. With only about a fortnight's notice, this section was accurately and promptly prepared.

NEWS NOTES

American Association for the Advancement of Science. Professor H. J. Deuel discussed weight reduction methods before the June meeting of the Association, when he stated that women who fast or starve themselves for the sake of a slender figure do so at a greater risk to their health than do men undergoing similar deprivations. "Women develop a much more pronounced acidosis during a week's fasting than do men. This condition is associated with the inability of females to oxidize during starvation as completely as the male subjects are able to do. For this reason an accumulation of incompletely oxidized end products, which are organic acids, occurs in the female and typical symptoms of acidosis ensue." Professor Deuel said that experiments on animals may indicate that certain gland operations might reverse this comparative ability to endure starvation between the sexes.

The American Home Economics Association held its annual convention from June 25 to 29 at the Pennsylvania Hotel, New York City. On Thursday, June 28, Mary de Garmo Bryan introduced the speakers at the institutional management luncheon, when Quindara Oliver Dodge discussed the hospital training and college standards for hospital dietitians. Mary Lindsley, managing director of the Dodge Hotel, Washington, D.C., discussed the place of the trained home economics worker in the hospital field, and Mrs. C. M. Downey, of the Olney Inn, Olney, Md., presented the point of view of the experienced restaurateur.

At the final session Dr. Mary Swartz Rose spoke of the problems created by the present-day superior, scientifically reared children. She said that the superchild should not be retarded, but that conditions should be created which make it possible for more children to attain this superior development. Dr. Paul Popenoe, director of the Los Angeles Institute of Family Relations, spoke before a discussion group at the convention.

Effie Raitt, director of home economics at the University of Washington, was elected national president of the association to succeed Frances Zuill. Other officers elected were Mabel Campbell, vice president; Abby L. Marlett, counselor-at-large; S. Agnes Donham, controller, and H. Gale Turpin, treasurer.

The Association adopted resolutions for further federal recognition and protection of consumers' rights, and support of the program of graded merchandise as advocated by the Consumers Advisory Board of the NRA. The convention also voted to support social insurance legislation and to request the FERA to bring together a working committee of home economists to organize an efficient system of education in food and nutrition.

The final activity of the convention was a night and early morning trip to inspect New York produce markets, including the New York Central Milk receiving station, wholesale fruit and vegetable markets in the area from Chambers Street to North Moore Street, the Wallabout market and the Fulton fish market.

American Medical Association. At the Session of Nutrition at the June meeting, the following papers were presented: "Nutrition and Resistance to Infection," Dr. S. W. Clausen; address by Dr. H. R. Geyelin; "Ulcerative Colitis: III. The Factor of Deficiency States: A Clinical Study," Dr. T. T. Mackie; and "What Should a Patient with Arthritis Eat," Dr. Walter Bauer. Dr. James S. McLester, now President-elect of the Association, was chairman of the session and Dr. William S. McCann was secretary. In conjunction with the "Symposium on Nutrition," an exhibit was shown under the auspices of the Committee on Scientific Exhibit, the Committee on Foods, and *Hygeia*. The committee in charge was composed of W. C. Alvarez, Reginald Fitz and P. C. Jeans. The following subjects were included: foundation diets, overfeeding diets for the undernourished, reduction diets for the obese, anti-diarrhea diets, anticonsti-

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American Restaurant Magazine. The June issue of this publication launches a sanitation campaign among progressive restaurateurs and calls attention to "The Problem of Cleanliness in Food Handling" so "ably treated" by Lute Troutt in the May JOURNAL as a possible source of inspiration. The movement has been inspired by the need for adequate sanitary conditions in legitimate restaurants as contrasted with those in the many fly-by-night establishments competing for their trade. Owners of restaurants are offered a pledge of sanitation to sign, in which they agree, among other premises, to hire only employees whose physical fitness for food work is attested by a reputable physician; to require frequent regular examination of all employees as to health, habits, and personal cleanliness; to maintain strict sanitation within the restaurant premises, with especial attention to kitchen, refrigerators, storerooms, washrooms, and locker rooms; thoroughly to wash and sterilize with scalding hot water all silverware, china, and utensils after using, assuring the destruction of bacteria; to discard all chipped or cracked chinaware that might harbor germs; and to require frequent change of uniforms on the part of employees and regular inspection before going on duty as to the care of hands, fingernails, hair, etc.

The Canadian Hospital for May, 1934, was a special number, featuring the dietetic department. The leading article was a résumé of the annual meeting held by the Ontario Dietetic Association in April. Papers on "Dietary Problems of Diabetic Children," by Kathleen C. Burns, and "Dietitians in Ottawa Give Valuable Assistance to Those on Relief," by Mrs. S. Flavelle Taillon, also appeared in this issue. There was also an editorial on "Effecting Worthwhile Economies in a Dietary Department."

The Seventh Annual Graduate Fortnight of the New York Academy of Medicine will be held October 22 to November 2 and will be devoted to consideration of gastrointestinal diseases. Sixteen hospitals will present coordinated afternoon clinics and clinical demonstrations. At evening meetings, clinicians from various parts of the country will discuss various aspects of the subject. A comprehensive exhibit of anatomic, bacteriologic and pathologic specimens and research material will be shown. A complete program and registration blank may be obtained by addressing Dr. Frederick P. Reynolds, New York Academy of Medicine, 2 E. 103 St., New York City.

Hygeia. The June issue of this publication inaugurates a series of articles on the subject of the housewife's impressions of various commercially prepared food products. The first of this series discusses the relations between the Committee on Foods of the American Medical Association, and the evaporated milk industry, to be followed by a paper on canned fruit juices.

Public Health Reports for June 29, 1934, carries a table of pellagra-preventive values of various foods, also a bibliography on this subject, on pp. 754 to 756.

Maryland Dietetic Association. The annual business meeting was held in May when officers were elected for the coming year, as follows: president, Martha Manahan; vice-president, Vera Stemple; secretary, Ruth Hoover; and treasurer, Neva Lewis Coxen. Committees and section chairmen appointed for the coming year are: program: Annie Merkle, chairman, Katherine Gerlaugh and E. Geraghty; publicity: Mary E. Diefenderfer, chairman, Florence Mathers and Josephine Doyle; membership: Ruth Hoover, chairman, Helen Rudd and Jean Tait; section chairmen: administration, Alma Bering; diet therapy, (to be appointed); professional education, Marie Mount; and community education, Anna Trentham.

Massachusetts Dietetic Association. Mrs. Martha Stuart and her staff will be hostesses to the association at a tea to be held September 11 in the Nurses Residence of the Children's Hospital.

The program for 1934 and 1935 includes Edith Barber, author and consultant Laura

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Royal Anne Cherries	14%	"
Yellow Cling Peaches	9%	"
Bartlett Pears	11%	"
Sliced Pineapple	15%	"
Crushed Pineapple	13%	"
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Red Raspberries	*	
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Comstock, president-elect of the American Dietetic Association, Dr. Priscilla White, who will speak on diabetic children, Dr. Frank Allan on food allergies, and Dr. Louis Diamond on recent studies of the anemias.

A joint meeting of physicians, dentists and dietitians will be held at the Forsyth Dental Infirmary. The speaker for this meeting will be Dr. C. L. Drain of the school of dentistry of the University of Iowa.

Isabelle Lyons of the Lawrence Memorial Hospital in Medford has resigned as parliamentarian of the state association. She expects to study at Teachers' College, New York City in the Fall. Marion Woolworth, assistant dietitian at the Children's Hospital, has been appointed parliamentarian to fill the vacancy.

Cecilia McCarthy of the Women's Educational and Industrial Union is studying at Teacher's College this summer.

Mary Pope, who has been at Teachers' College for the past year, has returned to her position as assistant at the Newton Hospital.

Theodora Wakefield, who was substituting at the Newton Hospital, has accepted a position as assistant at the Faulkner Hospital.

Mary Robertson of the Massachusetts Memorial Hospitals has organized a food clinic in the out-patient department. Deborah Newton, a graduate of the Beth Israel Hospital, is assisting in the clinic.

Marie Mayer, who has been studying with Frances Stern at the Boston Dispensary for the past year, is working in the food clinic of the New York Hospital during the vacation period.

A pay cafeteria for staff men, medical students and office personnel has been opened at the Massachusetts General Hospital. Helen Strand Wollan, formerly assistant at the Syracuse University cafeteria, is in charge of the new unit.

Marion Floyd of the Massachusetts General Hospital has made the following additions to her staff: Bernice Schwartz of the University Clinic in Chicago is dietitian in the Baker Memorial Hospital, and Shirley Wells, a graduate of the University of Iowa, is research assistant.

Helen McDonald, a graduate of Acadia University and Beth Israel Hospital, is dietitian at the New England Baptist Hospital.

The New England Deaconess Hospital has opened the George F. Baker Clinic devoted to the treatment of diabetes. Rosina Vance planned the equipment for the kitchens. Dorothy Smith, a graduate of the Peter Bent Brigham Hospital, is her assistant in charge of the food service. Other changes in the Deaconess dietary staff are: Mae Belle Hellick resigned recently to return to her home in Easton, Pa.; Mary Tufts, a graduate of Children's Hospital, was appointed for the vacancy; Winifred Ramsey, a graduate of the Peter Bent Brigham Hospital was added as supervisor of the dining halls; and Hazel Ramsey from Beth Israel Hospital is relieving for vacations.

Elizabeth Taggart, assistant dietitian at the Boston City Hospital, has announced her engagement to Harold Winslow of Boston.

Dorothy Frank, a graduate of the Boston City Hospital, is dietitian at the Emerson Hospital in Jamaica Plain, Mass.

Winifred Whitelaw, a graduate of the Massachusetts General Hospital, has an appointment as assistant dietitian at Russell Sage College dining halls in Troy, N.Y.

Ruth Fritsche and Roberta Bell, recent graduates of Children's Hospital, have been retained to supervise an experiment in selective feeding on the wards.

Barbara Baker, another Children's Hospital graduate, is dietitian at Crane Sanitarium, Rutland, Mass.

Frances Anderson of the Peter Bent Brigham has recently accepted a position as assistant at the Beth Israel Hospital.

Marjorie Reed, who completed her student work at the Beth Israel Hospital in May, is an assistant dietitian at Salem Hospital, Salem, Mass.

Missouri State Dietetic Association was accepted as an affiliated group on July 11, 1934.

The Ottawa Dietetic Association elected the following officers at the fall meeting: president, Mrs. S. Flavelle Taillon, Ottawa General Hospital; vice-president, Isabelle

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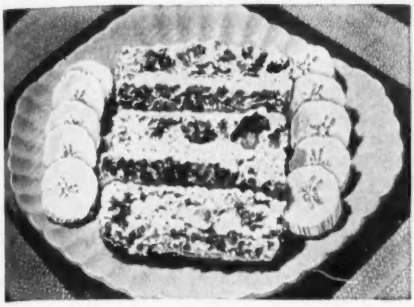

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Burnette; secretary, Lois Wright, Ottawa Welfare Bureau; corresponding secretary, Mrs. Ault; and treasurer, Frances King.

The work attempted throughout this year has been in keeping with the association's ideals, namely, a closer coöperation among dietitians and between dietitians and workers in allied fields, also an effort to raise the standard of nutrition in the city.

With the financial aid of the Zonta Club of Ottawa, the association was able to continue to hold its bi-weekly nutrition classes for those on relief and others who might be interested. The Welfare Bureau cooperates by seeing that those on relief attend these meetings. The purpose of these classes is essentially to show how to gain the maximum benefit from relief foods. These classes are particularly well attended, each being a demonstration of a week's menu, with a little entertainment provided by the Zonta Club.

At Christmas the association cares for a number of needy families suggested by the Ottawa Welfare Bureau.

This winter many speakers were brought in for the benefit of the association, including the president of the local Zonta Club; Mr. C. F. Macgillvary, Inspector of Canneries, who gave a talk on canned goods and standards; and the Jewish rabbi who spoke on Jewish food habits and customs. At one meeting a member, Miss Heney, of the Apiary Branch of the Experimental Farm, gave a picture of the problems in her field. Of interest to all was the "recipe exchange" evening.

The last meeting of the year is an informal dinner bridge party at the Chelsea Club.

Mrs. S. F. Taillon represented the association at the annual meeting of the Ontario Dietitic Association. At the banquet she spoke a few words on ideals and work of the association and its methods of accomplishment.

Martha Koehne is returning to her work at the Dental School at the University of Michigan at Ann Arbor on September 1.

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*A. F. Hurst, British Medical Journal, July 15, 1933, pages 89-94.

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WHO'S WHO IN THIS ISSUE

HOWARD H. BEARD, M.A., Ph.D., is professor of biochemistry, Louisiana State University Medical Center, New Orleans. He has published numerous papers upon nutritional subjects, especially in the fields of nutritional anemia and creatine and creatinine metabolism. Before receiving his degrees with Professors Sherman and Mendel he was assistant state chemist for five years in the South Carolina Department of Agriculture at Columbia.

ARTHUR D. HOLMES, Ph.D., Johns Hopkins University, 1911, has had wide experience as a research chemist with the United States Department of Agriculture, E. I. duPont de Nemours and Co., and since 1921 with the E. L. Patch Co. He is interested in nutrition research with special emphasis on the digestibility of oils and fats, and vitamin investigations. MADELEINE G. PIGOTT, B.S. in chemistry, Tufts College, did graduate work in the medical sciences at Harvard Medical School. She is research assistant at Harvard Medical School and E. L. Patch Co., and is interested in nutritional diseases, vitamin investigations and physiological chemistry. DR. W. A. SAWYER is medical director of the Eastman Kodak Company at Rochester, New York. He started his industrial work in Philadelphia in 1917, and since 1919 has been associated with the Kodak Company. He has always been greatly interested in the preventive aspects of medicine and believes that the industrial field presents unusual opportunities for such development. LAURA COMSTOCK, president-elect of the American Dietetic Association, was a contributor to the JOURNAL in December, 1930, and has been co-author with Dr. Holmes of other papers.

VERSA V. COLE has her doctor's degree from the University of Chicago. She was Douglas Smith Fellow in Surgery, University of Chicago, from 1931 to 1933. Since September, 1933, she has been research assistant in the Department of Medical and Surgical Research, Ohio State University. GEORGE M. CURTIS is professor of surgery at Ohio State University. He is the author of about thirty papers concerning thyroid function and goiter, ten of which concern the iodine relationships of goiter. He has long been interested in iodine metabolism as related to goiter. MARY L. BONE, a prominent member of the American Dietetic Association, has her B.S. degree from Ohio State University. She was a student dietitian at Presbyterian Hospital, New York City; later assistant dietitian at Montefiore Hospital, New York City, and Evanston Hospital, Evanston, Illinois. She has been chief dietitian at the Starling Loving Hospital, Ohio State University, for four years.

IRA A. MANVILLE and FRITZI G. CHUINARD's first paper in this series appeared in the JOURNAL for March, 1933.

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